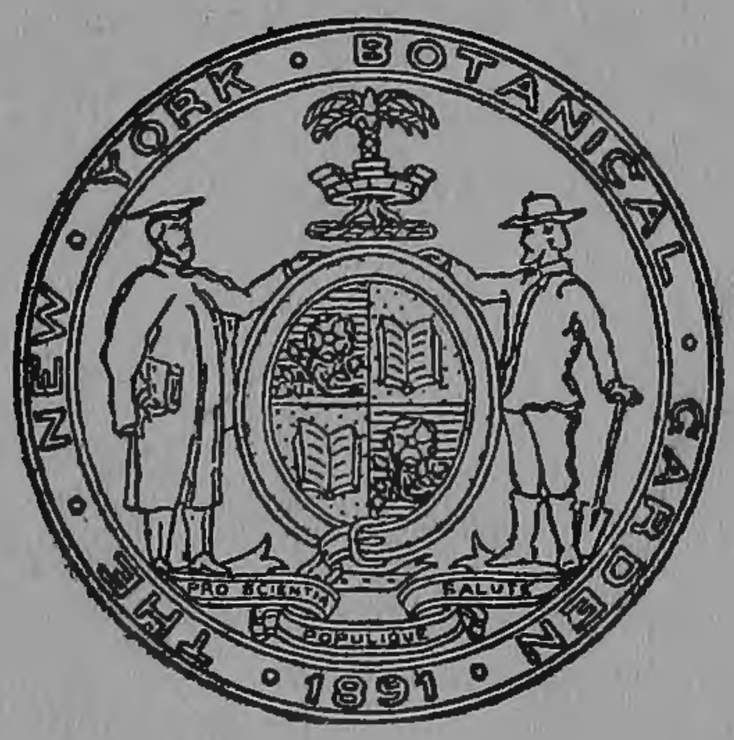
VOLUME 22 PART 4

NORTH AMERICAN FLORA

ROSACEAE (pars)

PER AXEL RYDBERG



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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 32. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professors Charles R. Barnes and John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Edward L. Greene, of the United States National Museum; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the Missouri Botanical Garden, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN

BRONX PARK

NEW YORK CITY

20. POTENTILLA L. Sp. Pl. 495. 1753.

Tormentilla L. Sp. Pl. 500. 1753.
Quinquefolium (Tourn.) Adans. Fam. Pl. 2: 295. 1763.
Pentaphyllum Gaertn. Fruct. 1: 349. 1788.
Tridophyllum Neck. Elem. 2: 93. 1790.
Dactylophyllum Spenn. Fl. Frib. 1084, in part. 1829.
Potentillopsis Opiz, Lotos 7: 30. 1857.
Chamaephyton Fourr. Ann. Soc. Linn. Lyon II. 16: 371. 1868.
Dynamidium Fourr. Ann. Soc. Linn. Lyon II. 16: 371. 1868.
Hypargyrium Fourr. Ann. Soc. Linn. Lyon II. 16: 371. 1868.
Callionia Greene, Leaflets 1: 238. 1906.

Annual or perennial herb, in the latter case usually with elongate, scaly, more or less cespitose rootstocks. Leaves pinnately or digitately compound. Inflorescence usually cymose-paniculate. Hypanthium concave, mostly hemispheric. Bractlets, sepals, and petals 5 (sometimes 4), the petals deciduous, obcordate, obovate, rotund, or cuneate, as a rule not unguiculate, obtuse or emarginate, yellow, white, or dark-purple. Stamens most commonly 20, in three series, viz., 10, 5, and 5, respectively, sometimes more, sometimes fewer, inserted not very far from the receptacular column; anthers generally more or less didymous; filaments filiform or subulate, neither flattened nor dilated. Receptacle hemispheric or conic, bearing numerous pistils (in *P. Lemmonii* only 5–10, in a few others 10–20). Style often long and filiform, sometimes short and thickened at the base, always attached near the apex of the ovary, articulated to it and deciduous. Seeds inserted near the base of the style, pendulous and anatropous.

Type species, *Potentilla reptans* L.[1]

Flowers solitary, axillary, on long pedicels.
  Leaflets not tomentose beneath. — I. TORMENTILLAE.
  Leaflets white-tomentose beneath. — XIII. LONGIPEDUNCULATAE.
Flowers cymose.
  Cymes very leafy, many-flowered.
    Bractlets usually 3-lobed. — II. HETEROSEPALAE.
    Bractlets entire.
      Annuals or biennials, rarely short-lived perennials; styles fusiform and glandular at the base.
        Leaflets merely toothed. — III. SUPINAE.
        Leaflets deeply dissected. — IV. ARENICOLAE.
      Perennials; styles filiform but short, not glandular. — V. ARGENTEAE.
  Cymes not very leafy, generally rather few-flowered.
    Flowers dark-red or dark-purple. — XVIII. RUBRAE.
    Flowers yellow or whitish.
      Leaves digitate.
        Basal leaves 5–9-foliolate.
          Basal leaves without an additional pair of leaflets on the petioles.
            Leaflets neither thick nor coriaceous. (Mostly species of temperate North America.)
              Plants more than 2 dm. high.
                Leaves green on both sides, sparingly hairy, not at all tomentose.
                  Stamens about 30; mature achenes reticulate. (Introduced species.) — VI. RECTAE.
                  Stamens 20, rarely 25; achenes smooth. (Native species.)
                    Bractlets elliptic or oval; stem very slender and weak; leaves very thin, almost glabrous. — VII. HEPTAPHYLLAE.
                    Bractlets lanceolate; stem stiff; leaves firmer. — VIII. NUTTALLIANAE.
                Leaves either densely hairy or more or less tomentose beneath.
                  Leaflets merely crenate or cut-toothed, the toothing not extending halfway to the midrib.

[1] As Linnaeus' genus *Potentilla* (see Genera Plantarum) was based primarily on Tournefort's *Quinquefolium*, the type of the latter becomes the type of the former.

Leaflets densely pubescent beneath, if at all tomentose, the tomentum hidden under the long hairs.	
Leaves green and sparingly pubescent on the upper side.	VIII. NUTTALLIANAE. p. 310
Leaves densely and softly pubescent on both sides, almost velvety; inflorescence dense.	IX. PERMOLLES.
Leaflets principally tomentose beneath, only slightly hairy.	XII. GRACILES. 317
Leaflets cleft more than halfway to the midrib into linear, oblong or lance-oblong divisions.	
Stems ascending or decumbent at the base; stem-leaves few, reduced, with 3–5 leaflets.	X. CANDIDAE.
Stems leafy; most of the stem-leaves 7-foliolate.	XI. PECTINISECTAE. 316
Plants less than 2 dm. high.	
Leaves neither tomentose nor silky, green.	
Stem simple, erect, few-flowered; sepals and bractlets not incurved.	XIX. AUREAE.
Stems spreading, with many branches; sepals and bractlets incurved.	XX. SUBVISCOSAE.
Leaves tomentose or silky, at least beneath.	XXI. CONCINNAE.
Leaflets thick and coriaceous. (Mexican and Central American species with thick caudices.)	
Leaflets obovate.	
Leaves not tomentose beneath.	XV. SUBCORIACEAE.
Leaves tomentose beneath.	XVI. OBOVATIFOLIAE.
Leaflets linear-oblong, densely hairy on both sides.	XVII. HORRIDAE.
Basal leaves digitately 5-foliolate with an additional pair of smaller leaflets on the petiole.	XIV. SUBJUGAE.
Basal leaves 3-foliolate.	
Leaves more or less tomentose beneath.	XXII. NIVEAE.
Leaves not tomentose.	
Leaflets merely toothed.	XXIII. FRIGIDAE.
Leaflets divided to near the base into 2 or 3 entire segments.	XXIV. BIFLORAE.
Leaves odd-pinnate.	
Style much longer than the mature achene, filiform.	
Petals from acutish to acuminate; plant glandular-viscid.	XXV. SAXOSAE.
Petals rounded or emarginate at the apex.	
Leaves with 1–3 more or less approximate pairs of leaflets.	
Leaves not at all tomentose.	
Style subterminal.	XIX. AUREAE.
Style attached below the apex of the achene.	XXVI. BREVIFOLIAE.
Leaves more or less tomentose beneath.	XXVII. RUBRICAULES.
Leaves with 3–13 pairs of leaflets.	
Leaves grayish or whitish, silky or tomentose, at least beneath.	
Leaflets dissected into linear segments.	XXVIII. CANDICANTES.
Leaflets toothed or incised.	XXIX. LEUCOPHYLLAE.
Leaves green on both sides or merely strigose.	
Petals yellow; bristles of the receptacle not unusually long.	XXX. MULTIJUGAE.
Petals white; bristles of the receptacle very long.	IV. ARENICOLAE.
Style not longer than the mature achene, thickened and glandular below (except in *P. multifida*); leaves usually more or less tomentose beneath.	XXXI. MULTIFIDAE.

I. TORMENTILLAE

Flowers 4-merous; upper leaves 3-foliolate.	1. *P. procumbens*.
Flowers 5-merous; leaves usually all 5-foliolate.	
Pubescence of the stem, petioles, and peduncles appressed.	
Leaflets sparingly silky or strigose, obovate, oblanceolate, or elliptic, toothed except at the very base.	
Leaflets crenate; bractlets ovate or elliptic, usually exceeding the sepals; stem creeping.	2. *P. reptans*.

Leaflets serrate or dentate; bractlets lanceolate or linear-lanceolate, about equaling the sepals; stem at first ascending. 3. *P. simplex.*
Leaflets densely silky beneath; those of the basal leaves cuneate-obovate, toothed only at the apex or at least only above the middle; stem low, producing runners. 4. *P. pumila.*
Pubescence of the stem, petioles, and peduncles spreading.
Pubescence of the obovate or oblanceolate leaflets appressed. 5. *P. canadensis.*
Pubescence of the cuneate leaflets long and loosely spreading. 6. *P. caroliniana.*

II. HETEROSEPALAE

One species. 7. *P. heterosepala.*

III. SUPINAE

Achenes with a corky gibbosity on the upper suture.
Leaves all pinnate with 3–5 pairs of leaflets; inflorescence cymose. 8. *P. paradoxa.*
Lower leaves pinnate with 2–3 pairs, the upper ternate; inflorescence falsely racemose. 9. *P. Nicolletii.*
Achenes not gibbous.
Lower leaves pinnate with 2 approximate pairs of leaflets, the upper ternate; stem strict; inflorescence cymose. 10. *P. rivalis.*
Leaves all digitate; the basal ones rarely pinnate in *P. monspeliensis.*
Leaves ternate.
Petals about half as long as the sepals; achenes whitish, smooth; hypanthium in fruit 5 mm. wide or less.
Stem slender; petals cuneate or obovate; sepals and bractlets 3–4 mm. long.
Stem with diffuse, spreading branches; leaflets cuneate; inflorescence cymose.
Petals yellow; stamens 10. 11. *P. millegrana.*
Petals white; stamens 5. (Mexican.) 12. *P. michoacana.*
Stem with erect or strongly ascending branches; inflorescence inclined to be falsely racemose.
Leaflets broadly obovate; plant decidedly glandular-puberulent; stamens about 10. 13. *P. biennis.*
Leaflets elliptic-obovate; plant densely pubescent but not glandular; stamens 20. 14. *P. flavovirens.*
Stem stout; petals obcordate; sepals and bractlets 5 mm. long; plants densely glandular. 15. *P. Kelseyi.*
Petals equaling the sepals or nearly so; hypanthium in fruit about 7 mm. wide; stamens 15–20.
Bractlets oval, usually obtuse; petals broadly obcordate; achenes smooth.
Stem glabrous up to the inflorescence; petals with an open shallow notch. 16. *P. flexuosa.*
Stem hirsute; petals with a narrow acute notch at the apex. 17. *P. leurocarpa.*
Bractlets lance-elliptic or lanceolate, usually acute; petals obovate or cuneate, truncate or with a broad and shallow emargination; achenes usually rugose when ripe. 18. *P. monspeliensis.*
Lower leaves digitately 5-foliolate, or ternate with the lateral leaflets 2-cleft to near the base; stamens 5. 19. *P. pentandra.*

IV. ARENICOLAE

One species. 20. *P. Newberryi.*

V. ARGENTEAE

Leaves white-tomentose beneath.
Teeth of the leaves ovate, margin not revolute; fruiting calyx 5–7 mm. in diameter. 21. *P. collina.*
Teeth of the leaves oblong or linear, margin revolute; fruiting calyx 5 mm. in diameter or less. 22. *P. argentea.*
Leaves not white-tomentose beneath.
Leaves green on both sides; leaflets of the basal leaves obovate or cuneate. 23. *P. intermedia.*
Leaves grayish-silky and slightly tomentose beneath; leaflets oblanceolate. 24. *P. inclinata.*

VI. RECTAE

Petals deep-yellow, only slightly longer than the sepals. 25. *P. recta.*
Petals sulfur-yellow, half longer than the sepals. 26. *P. sulphurea.*

VII. HEPTAPHYLLAE

One Mexican species. 27. *P. leptophylla.*

VIII. NUTTALLIANAE

Calyx and leaves more or less glandular-atomiferous; whole plant yellowish- or brownish-green; leaves with strong ribs.
Leaflets dissected into linear or oblong divisions. 28. *P. brunnescens.*
Leaflets coarsely toothed with lanceolate teeth. 29. *P. Nuttallii.*

Calyx and leaves not glandular-atomiferous; plant neither yellowish nor brownish; ribs of the leaves not prominent, except in nos. 32, 33, and 43.
Pubescence of the stem and petioles appressed.
Leaflets narrowly oblanceolate, almost linear; teeth ovate-triangular.
Bractlets equaling or exceeding the sepals in length. (Mexican species.) 30. *P. Townsendii.*
Bractlets ½–⅔ as long as the sepals. (United States species.) 31. *P. angustata.*
Leaflets oblanceolate to obovate.
Leaflets strongly ribbed, rather firm, cut-toothed with lanceolate teeth.
Stem densely grayish-strigose or pilose, stout.
Stem-leaves few, 5-foliolate; teeth usually curved outward. 32. *P. grosseserrata.*
Stem-leaves many, most of them 7-foliolate; teeth curved in. 33. *P. rectiformis.*
Stem almost glabrous, slender. 31. *P. angustata.*
Leaflets not strongly ribbed, thin; stem almost glabrous, slender.
Leaflets coarsely toothed.
Leaflets obovate or oblanceolate, toothed to near the base.
Stem erect or nearly so; pubescence of the leaves closely appressed.
Leaflets elliptic-oblanceolate with short ovate teeth. 34. *P. elomentosa.*
Leaflets obovate-oblanceolate with lanceolate teeth. 35. *P. jucunda.*
Stem decumbent-ascending; pubescence of the leaves rather loose. 36. *P. amadorensis.*
Leaflets cuneate-obovate, the middle ones mostly toothed above the middle, entire at the base.
Petals about 1 cm. long or more; stem strigose; leaves not glaucous. 37. *P. macropetala.*
Petals less than 8 mm. long; stem nearly glabrous; leaves glaucous. 86. *P. glaucophylla.*
Leaflets dissected at least halfway to the midrib.
Leaves rather densely silky beneath.
Stem slender; inflorescence open. 38. *P. Parishii.*
Stem stout, strict; inflorescence congested. 33. *P. rectiformis.*
Leaves glabrous except the veins. 39. *P. glabrata.*
Pubescence of the stem and petioles spreading; leaflets loosely hairy, often slightly tomentose beneath.
Leaflets of the basal leaves usually 7, oblanceolate, dentate-serrate. (Pacific species.)
Stem erect, strict, 4–7 dm. high, leafy. 40. *P. dascia.*
Stem decumbent or ascending, 2–4 dm. high, few-leaved.
Teeth of the leaflets many, lanceolate; bractlets linear-lanceolate. 41. *P. Hallii.*
Teeth of the leaflets few, ovate; bractlets oblong-lanceolate. 42. *P. lasia.*
Leaflets of the basal leaves usually 5, crenate; stem-leaves 3-foliolate. (Mexican species.)
Stem decumbent, 4–5 dm. high; leaflets of the basal leaves 5 cm. long; petioles short. 43. *P. oaxacana.*
Stem erect, 2–4 dm. high; leaflets of the basal leaves about 3 cm. long; petioles long. 44. *P. Goldmani.*

IX. PERMOLLES

One species. 45. *P. permollis.*

X. CANDIDAE

Segments of the leaflets lanceolate, acute; tomentum sparse. 57. *P. viridescens.*
Segments of the leaflets oblong to linear, obtusish; tomentum dense.
Pubescence of the petioles and stems appressed.
Leaves densely yellowish-silky above, snow-white tomentose and silky beneath. 46. *P. candida.*
Leaves green and sparingly silky above.
Leaves white-silky beneath. 47. *P. Elmeri.*
Leaves tomentose beneath.
Tomentum fine and dense; pedicels and hypanthium silky-strigose. 48. *P. Peclen.*
Tomentum loose; pedicels and hypanthium villous-tomentose. 49. *P. subvillosa.*
Pubescence of the petioles and stem spreading.
Sepals lanceolate or ovate-lanceolate, acuminate; petals about 7 mm. long. 50. *P. Bakeri.*
Sepals ovate, acute; petals about 4 mm. long. 51. *P. comosa.*

XI. PECTINISECTAE

Leaves green, finely silky beneath, slightly if at all tomentose. 52. *P. pectinisecta.*
Leaves white-tomentose beneath.
Divisions of the leaflets scarcely revolute; petals 7–10 mm. long.
Leaves loosely villous-tomentose above. 53. *P. longiloba.*
Leaves appressed-silky above. 54. *P. Blaschkeana.*
Divisions of the leaflets narrowly linear, revolute; petals 5–7 mm. long. 55. *P. flabelliformis.*

XII. GRACILES

Leaflets cut-toothed or cleft with lanceolate teeth.
  Leaflets with a cuneate entire base; tomentum sparse. — 56. *P. intermittens.*
  Leaflets toothed or cleft along their whole margins.
    Petioles with appressed or ascending hairs.
      Stem slender, 3–5 dm. high; inflorescence open, scarcely leafy.
        Petals 5–6 mm. long; bractlets lanceolate; leaves only sparingly tomentose beneath. — 57. *P. viridescens.*
        Petals 9–14 mm. long; bractlets linear; leaves densely tomentose beneath. — 58. *P. alaskana.*
      Stem stout, 4–7 dm. high, erect, leafy as well as the inflorescence.
        Leaves grayish-green beneath, only slightly tomentose. — 59. *P. glomerata.*
        Leaves densely white-tomentose beneath; stem densely hairy. — 60. *P. dichroa.*
    Petioles with spreading hairs.
      Leaflets of at least the stem-leaves oblanceolate, sparingly hairy or glabrate above; petals often 1 cm. long. — 61. *P. gracilis.*
      Leaflets obovate, densely hairy above; plant 3–4 dm. high; petals 5–6 mm. long. — 62. *P. camporum.*
Leaflets merely crenate with rounded or ovate teeth. — 63. *P. filipes.*

XIII. LONGIPEDUNCULATAE

One species. — 64. *P. longipedunculata.*

XIV. SUBJUGAE

One species. — 65. *P. subjuga.*

XV. SUBCORIACEAE

Bractlets lanceolate, acute or obtuse, scarcely more than half as long as the sepals; stems and petioles silky-strigose.
  Stem 3–5 dm. high, more or less glandular-pubescent on the upper portion. — 66. *P. subcoriacea.*
  Stem 1–2 dm. high, not at all glandular. — 67. *P. ranunculoides.*
Bractlets slightly if at all shorter than the sepals; stems and petioles hirsute.
  Bractlets elliptic, rounded at the apex; plant seldom over 1 dm. high. — 68. *P. Rydbergiana.*
  Bractlets oblong-acute; stem about 3 dm. high. — 44. *P. Goldmani.*

XVI. OBOVATIFOLIAE

Stamens 30–40; petals 1 cm. long or more. — 69. *P. staminea.*
Stamens about 20; petals less than 1 cm. long.
  Petals much exceeding the sepals, nearly twice as long. — 70. *P. obovatifolia.*
  Petals usually not exceeding the sepals. — 71. *P. leptopetala.*

XVII. HORRIDAE

Pubescence very dense; plant scarcely at all glandular. — 72. *P. horrida.*
Pubescence sparser; plant copiously glandular-atomiferous. — 73. *P. durangensis.*

XVIII. RUBRAE

Leaves all digitate.
  Leaves not velutinous.
    Leaves green, glabrate or silky beneath but without tomentum.
      Basal leaves with 3 crenate leaflets. — 74. *P. madrensis.*
      Basal leaves with 5–7 coarsely toothed leaflets. — 75. *P. Thurberi.*
    Leaves green above, more or less white-tomentose beneath.
      Leaflets obovate to oblanceolate, serrate. — 76. *P. atrorubens.*
      Leaflets oblong, crenate above the middle or merely 3–5-toothed at the apex. — 77. *P. rubra.*
  Leaves softly velutinous on both sides or at least beneath. — 78. *P. haematochrus.*
Basal leaves pinnate with approximate leaflets.
  Leaves tomentose beneath. — 79. *P. Ehrenbergiana.*
  Leaves green and slightly pubescent beneath, but not tomentose. — 80. *P. sanguinea.*

XIX. AUREAE

Leaflets almost linear, 3-toothed at the apex. — 81. *P. Sierrae-Blancae.*
Leaflets oblanceolate to broadly obovate in outline, toothed or dissected.
  Leaflets toothed, the toothing not deeper than halfway to the midrib.
    Leaflets crenate with rounded or rounded-ovate, obtuse teeth.
      Leaflets obovate or oblanceolate-obovate, crenate except the lowest one-third; stem more or less pubescent throughout.
        Leaves sparingly hairy or glabrate; bractlets obtuse, much shorter than the ovate sepals. — 82. *P. maculata.*
        Leaves more conspicuously long-hairy; bractlets usually acute, slightly shorter than the lanceolate sepals. — 83. *P. Langeana.*
      Leaflets cuneate or obovate-cuneate, toothed only at the apex; stem glabrous and straw-colored below; leaves glabrate. — 84. *P. Vreelandii.*
    Leaflets closely toothed or cleft with lanceolate or oblong, acute or barely obtusish teeth or segments.

Leaflets spatulate or obovate ; teeth usually spreading.
Stem sparingly hairy ; bractlets linear-lanceolate. 96. *P. concinnaeformis.*
Stem densely pubescent ; bractlets oblong. 95. *P. Hassei.*
Leaflets cuneate or cuneate-oblanceolate, toothed above the middle, teeth ascending.
Leaves rather densely silky-strigose ; the basal ones often inclined to be pinnate.
Sepals 5–6 mm. long. 85. *P. diversifolia.*
Sepals 7–9 mm. long. 37. *P. macropetala.*
Leaves slightly pubescent, in age glabrous and somewhat glaucous, digitate.
Plant with a short woody caudex ; leaflets usually oblanceolate-cuneate. (Rocky Mountain valley species.) 86. *P. glaucophylla.*
Plant with a long cespitose creeping rootstock : leaflets obovate-cuneate. (Arctic species.) 87. *P. Ranunculus.*
Leaves cleft or divided, the divisions extending two thirds to the midrib or further.
Leaflets cleft into oblong or lanceolate divisions, slightly silky-strigose, in age glabrate. 88. *P. perdissecta.*
Leaflets divided into linear divisions, permanently strigose. 89. *P. multisecta.*

XX. SUBVISCOSAE

Petals not unguiculate.
Leaflets 1–2.5 cm. long, silky, not at all glandular ; stem usually 1–2 cm. long. 90. *P. Wheeleri.*
Leaflets less than 1 cm. long, hirsute and usually more or less glandular-granuliferous ; stem 5 cm. long or less. 91. *P. viscidula.*
Petals unguiculate ; plant hirsute and glandular-puberulent.
Leaflets 1–4 cm. long. 92. *P. subviscosa.*
Leaflets 5–7 cm. long, with prominent veins. 93. *P. ramulosa.*

XXI. CONCINNAE

Leaflets densely silvery-silky on both sides, only slightly if at all tomentose beneath.
Leaflets deeply dissected. 48. *P. Pecten.*
Leaflets merely toothed.
Inflorescence many-flowered and dense.
Leaflets oblanceolate or narrowly obovate, bractlets linear-lanceolate. 94. *P. fastigiata.*
Leaflets broadly obovate, bractlets mostly oblong. 95. *P. Hassei.*
Inflorescence few-flowered and open. 96. *P. concinnaeformis.*
Leaflets densely white-tomentose beneath.
Leaflets merely crenate or serrate.
Leaflets obovate to oblanceolate, toothed except at the very base.
Leaflets of the basal leaves obovate, coarsely serrate with ovate or rounded teeth.
Sepals ovate, acute. 97. *P. concinna.*
Sepals lanceolate, acuminate.
Leaflets obovate, few-toothed. (Occasional forms of) 108. *P. nivea.*
Leaflets oblanceolate, many-toothed. (Depauperate forms of) 63. *P. filipes.*
Leaflets of the basal leaves oblanceolate, serrate, with small teeth directed forward ; sepals and bractlets narrowly lanceolate. 98. *P. oblanceolata.*
Leaflets oblong with entire margins, only 3-toothed (seldom 5-toothed) at the apex. 99. *P. bicrenata.*
Leaflets deeply dissected.
Pubescence spreading, loose. 106. *P. Pedersenii.*
Pubescence mostly appressed.
Bractlets lanceolate or linear-lanceolate, acute ; petals light-yellow.
Plant diffuse ; sepals ovate ; leaves more or less grayish above. 100. *P. divisa.*
Plant erect or ascending ; sepals lanceolate, acuminate ; leaves green above.
Sepals lanceolate ; bractlets linear-lanceolate ; leaflets broadly obovate. 101. *P. quinquefolia.*
Sepals linear-lanceolate ; bractlets narrowly linear ; leaflets narrowly obovate or oblanceolate. 107. *P. nipharga.*
Bractlets linear, obtuse ; petals 4 mm. long, golden ; inflorescence rather dense. 102. *P. modesta.*

XXII. NIVEAE

Stem 3–5 dm. long ; leaflets lanceolate. (Mexican species.) 103. *P. Pringlei.*
Stem usually less than 3 dm. long ; leaflets oblanceolate, obovate, or cuneate. (Arctic-alpine species.)
Bractlets linear or lanceolate, rarely oblong.

Leaflets oblanceolate or obovate, toothed or cleft except at the very base; stem usually 1–2 dm. high, more or less leafy, several-flowered.
Leaflets deeply cleft; the clefts extending at least halfway to the midrib.
Inflorescence dense and congested.
Leaflets 2.5–3.5 cm. long, glabrous above and strongly veiny; sepals 7–8 mm. long. 104. *P. prostrata.*
Leaflets 1–2 cm. long, silky above and indistinctly veiny; sepals about 4 mm. long. 105. *P. Hookeriana.*
Inflorescence open, with slender pedicels.
Leaves loosely white-silky on both sides; caudex with elongate branches densely covered by the remains of old leaves. 106. *P. Pedersenii.*
Leaves green above; caudices short.
Sepals lanceolate; bractlets linear-lanceolate; leaflets broadly obovate; basal leaves, at least some of them, 5-foliolate. 101. *P. quinquefolia.*
Sepals linear-lanceolate; bractlets narrowly linear; leaflets narrowly obovate or oblanceolate; leaves rarely 5-foliolate. 107. *P. nipharga.*
Leaflets coarsely toothed; the toothing rarely extending halfway to the midrib. 108. *P. nivea.*
Leaflets broadly cuneate, toothed only above the middle; stems usually less than 1 dm. high, scapiform, 1–2-flowered (rarely 3-flowered). 109. *P. uniflora.*
Bractlets oval or elliptic, sometimes ovate.
Stem low, scapiform, 1–2-flowered, less than 1 dm. high; leaves not strongly ribbed. 110. *P. Vahliana.*
Stem 1–3 dm. high, usually several-flowered; leaves with prominent ribs. 111. *P. villosa.*

XXIII. FRIGIDAE

Leaflets all sessile or short-stalked.
Stem 1–3 dm. high, erect, leafy.
Leaflets broadly cuneate-obovate or flabelliform, not glandular; those of the stem-leaves much larger than the stipules; petals 8–10 mm. long.
Leaflets cuneate-flabelliform, glabrate or short-pubescent; those of the stem-leaves often cleft. 112. *P. flabellifolia.*
Leaflets broadly cuneate-obovate, decidedly long-pubescent, coarsely crenate. 114. *P. fragiformis.*
Leaflets obovate or broadly oblanceolate, 3–4-crenate at the apex, somewhat glandular; those of the stem-leaves scarcely longer than the long stipules; petals about 6 mm. long. 113. *P. Friesiana.*
Stem less than 1 dm. high, decumbent; stem-leaves few, reduced.
Petals much exceeding the sepals. 115. *P. emarginata.*
Petals scarcely exceeding the sepals. 116. *P. Robbinsiana.*
Terminal leaflets long-stalked. 122. *P. Grayana.*

XXIV. BIFLORAE

One species. 117. *P. biflora.*

XXV. SAXOSAE

Leaflets of the basal leaves 7–9, cleft. 118. *P. saxosa.*
Leaflets of the basal leaves 3–5, crenate.
Leaflets thick; bractlets ovate. 119. *P. rosulata.*
Leaflets thin; bractlets linear-lanceolate to oblong. 120. *P. acuminata.*

XXVI. BREVIFOLIAE

Leaves pinnate with 5 leaflets. 121. *P. brevifolia.*
Leaves pinnately 3-foliolate. 122. *P. Grayi.*

XXVII. RUBRICAULES

Leaves mostly greenish above, tomentose beneath.
Sepals lanceolate or linear.
Segments of the leaves linear; stem nearly erect, slender; sepals almost linear. 123. *P. tenerrima.*
Segments of the leaves lanceolate or oblong; sepals lanceolate.
Segments lanceolate, acute.
Leaves densely white-tomentose beneath; pubescence of the petioles spreading. 124. *P. rubricaulis.*
Leaflets only slightly tomentose beneath; pubescence of the petioles appressed. 141. *P. viridior.*
Segments oblong to orbicular, obtuse.
Segments of the leaves narrowly oblong. 125. *P. rubripes.*
Segments of the leaves oval to orbicular. 126. *P. minutifolia.*
Sepals broadly ovate-triangular.
Plant densely cespitose; segments of the leaves obtuse. 127. *P. saximontana.*
Plant with spreading branches; segments of the leaves acute. 100. *P. divisa.*

Leaves densely silky on both sides.
Pubescence white; stem erect or ascending.
Leaves with 2 or 3 pairs of leaflets; bractlets much shorter than the sepals; stem strict. 128. *P. filicaulis.*
Leaves with 3–5 pairs of leaflets; bractlets little if at all shorter than the sepals; stem decumbent-ascending.
Leaflets deeply cleft. 129. *P. Macounii.*
Leaflets merely toothed. 130. *P. proxima.*
Pubescence yellowish; stem decumbent-prostrate. 131. *P. luteosericea.*

XXVIII. CANDICANTES

One Mexican species. 132. *P. candicans.*

XXIX. LEUCOPHYLLAE

Leaflets oblanceolate or obovate, serrate or crenate.
Pistils 20 or fewer; bractlets much shorter than the acuminate sepals; tomentum, if any, loose and not dense.
Plant tomentose throughout. 133. *P. coloradensis.*
Plant green and nearly glabrous up to the inflorescence. 134. *P. rupincola.*
Pistils usually more than 20.
Leaves white-tomentose beneath; pubescence of the stem and petioles mostly appressed.
Leaves almost equally white-pubescent on both sides.
Bractlets much shorter than the acuminate sepals.
Leaflets not closely approximate, finely tomentose. 135. *P. effusa.*
Leaflets closely approximate, coarsely appressed-silky as well as tomentose. 136. *P. lupina.*
Bractlets at least ¾ as long as the acute sepals.
Inflorescence open; leaves silky and shining. 137. *P. Hippiana.*
Inflorescence dense; leaves loosely tomentose and rather dull. 138. *P. argyrea.*
Leaves green and merely silky above.
Leaflets usually 9, all usually ascending; the upper pair decurrent. 139. *P. propinqua.*
Leaflets 5–7, the lower spreading or reflexed; the upper pair not decurrent.
Leaflets densely white beneath; teeth ovate. 140. *P. pulcherrima.*
Leaflets thin, sparingly tomentose beneath; teeth lanceolate. 141. *P. viridior.*
Leaves green beneath, only slightly tomentulose when young; pubescence of the stems and petioles spreading. 142. *P. ambigens.*
Leaflets cuneate, cleft (rarely only toothed) at the apex.
Leaflets with rather short and broad, ovate or lanceolate divisions.
Basal leaves with 5–7, closely approximate, broadly cuneate or flabelliform leaflets; stem-leaves mostly ternate. 143. *P. Bruceae.*
Basal leaves with 7–17 cuneate leaflets; stem-leaves pinnate. 144. *P. Breweri.*
Leaflets with narrow, linear-oblong divisions. 150. *P. versicolor.*

XXX. MULTIJUGAE

Pedicels at least in fruit arcuate-spreading; stems diffuse or spreading, except in a rare form of *P. plattensis.*
Leaflets almost digitately divided into few linear divisions.
Stem and petioles rather copiously hairy with long ascending or at length spreading hairs. 145. *P. klamathensis.*
Stem and pedicels sparingly strigose with short appressed hairs.
Bractlets lanceolate, acute, equaling the sepals or nearly so. 146. *P. millefolia.*
Bractlets elliptic or oblong, obtuse, much shorter than the sepals. 147. *P. Hickmani.*
Leaflets pinnately divided with several or many oblong or lanceolate divisions. 148. *P. plattensis.*
Pedicels erect or ascending, straight; stem erect or ascending.
Leaves dissected to near the midrib.
Leaflets with 7–9 divergent segments. 149. *P. arizonica.*
Leaflets with 3–5 (seldom 7) ascending segments.
Young leaves covered with dense short pubescence, intermixed with some tomentum; older leaves yellowish-green. 150. *P. versicolor.*
Young leaves with long coarse white hairs, but no tomentum.
Stem and mature leaves glabrate; leaflets cuneate, cleft above the middle into oblong or ovate divisions.
Stem 1–3 dm. high; leaflets elongate-cuneate with oblong divisions. 151. *P. Nelsoniana.*
Stem about 1 dm. high; leaflets short-cuneate, merely toothed at the apex. 152. *P. decurrens.*
Stem and mature leaves more or less hairy; leaflets obovate, at least the upper pinnatisect.
Divisions of the leaflets long, narrowly linear; stem 2–3 dm. high; leaflets many. 153. *P. wyomingensis.*
Divisions of the leaflets oblong or oblanceolate; stem less than 2 dm. high; leaflets few. 154. *P. ovina.*

Leaflets not dissected to near the midrib.
Leaflets not densely grayish-strigose.
Leaflets 5–17.
Stem villous with spreading hairs. (Mexican.) 155. *P. Richardii.*
Stem not villous with spreading hairs. (United States.)
Sepals ovate or lance-ovate; bractlets lanceolate or oblong.
Stem about 1 dm. high; leaflets 1 cm. long or less, toothed only at the apex. 152. *P. decurrens.*
Stem 2–4 dm. high; leaflets over 1 cm. long; if smaller, then deeply cleft.
Leaflets less than 2 cm. long; calyx silky-strigose. 156. *P. cascadensis.*
Leaflets over 2 cm. long; calyx hirsute. 157. *P. Drummondii.*
Sepals linear-lanceolate, acuminate; bractlets linear-subulate. 134. *P. rupincola.*
Leaflets 17–27. 158. *P. multijuga.*
Leaves densely grayish-strigose or silky.
Stem 1–4 dm. high; leaflets cuneate or linear-oblong, toothed at the apex only.
Stem ascending or decumbent; leaves conduplicate; pistils numerous. 159. *P. crinita.*
Stem erect; leaves flat; pistils 5–12. 160. *P. Lemmonii.*
Stem stout, 6–7 dm. high; leaflets obovate-oblong, coarsely serrate. 142. *P. ambigens.*

XXXI. MULTIFIDAE

Pubescence of the under side of the leaves silvery-white.
Petioles and the lower part of the stem silky-villous with spreading hairs
Terminal leaflet of the basal leaves 5–9-toothed; the lateral ones 2–5-toothed. (Arctic species.)
Leaflets greener above, their lobes oblong, elliptic or lanceolate, mostly obtuse; terminal leaflet stalked.
Plant 5 cm. high or less; leaves glabrate above; petals usually entire. 161. *P. Sommerfeltii.*
Plant 5–30 cm. high; leaves long-hairy above; petals usually emarginate. 162. *P. subarctica.*
Leaflets nearly equally grayish-silky on both sides, their lobes linear-lanceolate, acute; terminal leaflet usually sessile. 163. *P. pulchella.*
Terminal leaflet of the basal leaves 11–15-toothed; the lateral ones 5–9-toothed. (Great Basin species.) 164. *P. paucijuga.*
Petioles and stem tomentulose and silky-strigose.
Segments of the leaflets acute; styles not thickened. 165. *P. multifida.*
Segments of the leaflets obtuse; styles thickened at the base.
Segments of the leaflets linear or linear-oblong; branches of the inflorescence usually short and ascending.
Leaflets usually white on both sides; petals and sepals 4–6 mm. long.
Stem decumbent or ascending, 0.5–1 dm. high; leaflets 2 or 3 rather approximate pairs. 166. *P. pseudosericea.*
Stem erect, 3–5 dm. high; leaflets 3–7 usually rather remote pairs. 167. *P. bipinnatifida.*
Leaflets green above; petals and sepals about 3 mm. long. 169. *P. virgulata.*
Segments of the leaflets lanceolate or oblong, usually green above; branches of the inflorescence long and erect. 168. *P. platyloba.*
Pubescence of the under side of the leaves grayish.
Petioles and stem appressed-pubescent.
Segments of the leaflets narrowly linear; petals and sepals about 3 mm. long. 169. *P. virgulata.*
Segments of the leaflets ovate, lanceolate, or oblong; petals and sepals 4–6 mm. long.
Basal leaf-blades orbicular or pentagonal in outline with 3 approximate pairs of leaflets. 170. *P. pectinata.*
Basal leaf-blades obovate in outline; leaflets usually more than 3 pairs and more distant.
Leaves glandular-pruinose above and sometimes with scattered long hairs. 171. *P. glabrella.*
Leaves short-strigose above.
Margins of the leaf-segments not revolute. 172. *P. pennsylvanica.*
Margins of the leaf-segments revolute. 173. *P. arachnoidea.*
Petioles and stem with spreading hairs.
Flowers distinctly pedicelled; upper leaflets of the basal leaves with 9–13 segments; pubescence of the stem and petioles long.
Plant dark-green; leaves scarcely paler beneath. 174. *P. atrovirens.*
Plant not dark-green; leaves decidedly paler beneath. 175. *P. strigosa.*
Flowers usually subsessile, densely conglomerate; upper leaflets of the basal leaves with 15–21 segments; pubescence of the stem short and dense. 176. *P. lasiodonta.*

I. **Tormentillae.** Plants perennial with a more or less prostrate or spreading stem, often rooting at the nodes. Leaves digitately 3–5-foliolate. Flowers middle-sized, borne on long solitary axillary pedicels. Petals 4 or 5, obcordate, yellow, surpassing the sepals by about one half. Stamens 16–20, with rather short filaments. Pistils numerous; styles slender, filiform.

1. **Potentilla procumbens** Sibth. Fl. Oxon. 162. 1794.

Tormentilla reptans L. Sp. Pl. 500. 1753. Not *P. reptans* L. 1753.
Potentilla nemoralis Nestler, Monog. Potent. 65. 1816.
Potentilla Tormentilla nemoralis Seringe, in DC. Prodr. 2: 574. 1825.
Potentilla Tormentilla procumbens Wender. Fl. Hass. 160. 1846.

Stems several from a perennial root, prostrate and flagelliform, often rooting at the nodes, glabrate or sparingly strigose; stipules narrowly lanceolate and mostly entire; basal leaves digitately 5- (sometimes 3-) foliolate; petioles 3–8 cm. long, sparingly strigose; leaflets obovate-cuneate, sparingly appressed-hairy on both sides or glabrate in age, especially above, toothed above the middle; stem-leaves ternate, with shorter petioles, sometimes almost sessile, and with narrow leaflets; bractlets, sepals, and petals generally only 4; bractlets and sepals lanceolate, subequal, 4–6 mm. long; petals broadly obcordate, 5–6 mm. long; stamens about 16.

TYPE LOCALITY: England.
DISTRIBUTION: Nearly the whole of Europe; also in Labrador and Nova Scotia; introduced in California.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 13*; Dietr. Fl. Bor. **3**: *pl. 172*; Fl. Dan. *pl. 1819*; Sturm, Deuts. Fl. **92**: *pl. 2*; Engl. Bot. *pl. 864*; Britt. & Brown, Ill. Fl. *f. 1936*.

2. **Potentilla reptans** L. Sp. Pl. 499. 1753.

Fragaria reptans Crantz, Inst. **2**: 179. 1766.
Dynamidium reptans Fourr. Ann. Soc. Linn. Lyon II. **16**: 371. 1868.

Stems from a perennial root, slender, prostrate, slightly strigose or glabrate, often rooting at the nodes; stipules oblong-lanceolate, mostly entire; leaves digitately 5-foliolate; petioles 3–10 cm. long, strigose; leaflets 1–3 cm. long, cuneate to oblanceolate, crenate or dentate, equally appressed-pubescent on both sides or in age glabrate, acute at the base, obtuse or rounded at the apex; bractlets ovate or elliptic, 5–10 mm. long, usually much exceeding the ovate sepals; petals 5, obcordate, 6–10 mm. long, yellow; stamens about 20.

TYPE LOCALITY: Europe.
DISTRIBUTION: Europe and northern Asia; introduced in the eastern United States, mostly as a ballast plant; Bermuda.
ILLUSTRATIONS: Dietr. Fl. Bor. **3**: *pl. 171*; Hayne, Arzn. Gew. **4**: *pl. 32*; Sturm, Deuts. Fl. **91**: *pl. 12*; Engl. Bot. *pl. 862*; Fl. Dan. *pl. 1164*; Schrank, Fl. Monac. *pl. 366*.

3. **Potentilla simplex** Michx. Fl. Bor. Am. **1**: 303. 1803.

Potentilla canadensis simplex T. & G. Fl. N. Am. 1: 443. 1840.
Callionia simplex Greene, Leaflets 1: 238. 1906.

Perennial, with a short roostock; stem slender, first erect, soon decumbent, 4–10 dm. long, appressed-pubescent; basal leaves digitately 5-foliolate; petioles 5–8 cm. long, appressed-pubescent; leaflets 2–6 cm. long, oblanceolate or oblong-oblanceolate, rarely obovate, coarsely toothed except the lower one fourth or one third, rather dark-green, glabrous or nearly so above, appressed-silky especially on the veins beneath, usually acute at both ends; stem-leaves similar but short-petioled and always narrow; stipules lanceolate, 1–1.5 cm. long, acuminate, entire or toothed; peduncles 3.5 cm. long, appressed-pubescent; bractlets linear-lanceolate, 4–5 mm. long, equaling or slightly exceeding the similar but slightly broader sepals; petals broadly obcordate, 5–6 mm. long; stamens 20–25; styles slender, filiform.

TYPE LOCALITY: Canada.
DISTRIBUTION: Open woods and among grass, Nova Scotia to Minnesota, Missouri, and the mountains of Alabama and North Carolina.
ILLUSTRATION: Nestler, Monog. Potent. *pl. 9, f. 2*.

4. **Potentilla pumila** Poir. in Lam. Encyc. 5: 594. 1804.

Potentilla canadensis Michx. Fl. Bor. Am. 1: 303. 1803. Not *P. canadensis* L. 1753.
Potentilla canadensis pumila T. & G. Fl. N. Am. 1: 443. 1840.
Callionia pumila Greene, Leaflets 1: 238. 1906.

Perennial, with a short rootstock; stems at flowering time very short and upright, less than 1 dm. high, later on producing longer runner-like and prostrate branches, densely silky-strigose; stipules ovate or lanceolate, entire or toothed, 1 cm. long or less; basal leaves with silky-strigose petioles 2–4 cm. long, digitately 5-foliolate; leaflets obovate-cuneate, about 2 cm. long, densely silky-strigose, coarsely serrate towards the apex or at most above the middle only; flowers few, 6–10 mm. in diameter, axillary, the first one generally from the axil of the first stem-leaf, with slender strigose pedicels 3–5 cm. long; hypanthium densely silky-strigose; bractlets and sepals subequal, narrowly lanceolate, 3–5 mm. long; petals yellow, rounded-obovate, rounded or truncate or slightly emarginate at the apex, 4–7 mm. long, a little exceeding the sepals; stamens about 20; styles slender, filiform.

TYPE LOCALITY: North America.
DISTRIBUTION: Sandy or dry soil from Maine to Georgia, Ohio, and Ontario.
ILLUSTRATIONS: Nestler, Monog. Potent. *pl. 10, f. 1* (as *P. canadensis*); Britt. & Brown, Ill. Fl. *f. 1935a*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 18, f. 1–2.*

5. **Potentilla canadensis** L. Sp. Pl. 498. 1753.

Fragaria canadensis Crantz, Inst. **2**: 178. 1766.
Potentilla sarmentosa Muhl.; Willd. Enum. 554. 1809.
Callionia canadensis Greene, Leaflets 1: 238. 1906.

Perennial, with a short thick rootstock; stems few, slender, silky-villous, generally with spreading pubescence, tinged with red, at first upright or assurgent, later decumbent or prostrate and flagelliform, 4–6 dm. long; stipules ovate or lanceolate, often 2–5-cleft or toothed, with acute divisions; basal leaves digitately 5-foliolate or 3-foliolate with the lateral leaflets divided in two; petioles 3–10 cm. long, with long spreading pubescence; leaflets 2–5 cm. long, obovate-oblanceolate or oval, coarsely serrate, slightly silky on both sides or glabrate above, usually obtuse or rounded at the apex; stem-leaves similar but short-petioled and often somewhat fascicled; flowers solitary, the first one from the axil of the second or some subsequent stem-leaf, on slender hirsute pedicels 3–10 cm. long; hypanthium silky, in fruit about 8 mm. in diameter; bractlets linear-lanceolate, about equaling the ovate or lanceolate sepals, 4–5 mm. long; petals yellow, obcordate, exceeding the sepals by about one third, 5–6 mm. long; stamens about 20.

TYPE LOCALITY: Canada.
DISTRIBUTION: Dry ground, New Brunswick to Wisconsin, eastern Texas, Alabama, and North Carolina.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1935*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 4.*

6. **Potentilla caroliniana** Poir. in Lam. Encyc. 5: 595. 1804.

Perennial, with a short rootstock; stems prostrate, reddish and usually rooting at the nodes, 3–10 dm. long with spreading pubescence; basal leaves digitately 5-foliolate; petioles 2–8 cm. long, with coarse usually reflexed hairs; leaflets broadly obovate with a cuneate base, coarsely toothed above, 1.5–4 cm. long, usually firm, loosely pubescent with long and spreading hairs on both sides; stem-leaves similar but small, short-petioled and often 3-foliolate; stipules small, lanceolate; pedicels 4–6 cm. long, with spreading hairs; bractlets and sepals lanceolate, 3–4 mm. long; petals yellow, obcordate, one third longer than the sepals.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Dry woods, from southern Virginia to Missouri, Tennessee, and Georgia.

II. **Heterosepalae.** Plant decumbent, in habit much resembling certain species of the following group, but evidently perennial; the bractlets nearly always 3-cleft, which character has given name to the species and the group.

7. **Potentilla heterosepala** Fritsch, Bot. Jahrb. **11**: 314. 1890.

Potentilla dichotoma Galeotti; Lehm. Rev. Potent. 204. 1856. Not *P. dichotoma* Moench. 1794.
Potentilla heterosepala guatemalensis Fritsch, Bot. Jahrb. 11: 315. 1890.
Potentilla heterosepala mexicana Fritsch, Bot. Jahrb. 11: 315. 1890.
Potentilla Donnell-Smithii Focke, Bot. Gaz. 16: 3. 1891.

Perennial, with a thick root and cespitose caudex; stems several, 4–5 dm. long, leafy, slender, decumbent, strigose and slightly glandular; basal leaves numerous, pinnate; leaflets 3–7, cuneate-obovate or broadly obovate, subincised-crenate, 10–15 cm. long, 7–10 mm. wide, pilose on both sides, the terminal slightly stalked; petioles about 2 cm. long; stipules entire, adnate, acuminate; stem-leaves ternate with shorter petioles; inflorescence leafy; hypanthium hirsute; bractlets 3-cleft, seldom entire, oblong-elliptic, obtuse; sepals triangular, acute or short-acuminate; both in fruit incurved and enclosing the carpels; petals cuneate-obovate, emarginate, half longer than the sepals or more; flowers 1 cm. in diameter.

TYPE LOCALITY: Volcan de Agua near Santa Maria, Guatemala.
DISTRIBUTION: Mountains of Guatemala and southern Mexico.

III. **Supinae.** Plants annual, biennial, or short-lived perennial, leafy; the leaves of the many-flowered cyme very little reduced, so that the flowers seem more or less axillary. Flowers small. Petals scarcely exceeding the sepals, often only half as long, yellow or whitish, cuneate. Stamens often fewer than 20, with short filaments and small didymous anthers. Styles short, and thickened and glandular below, subterminal; stigmas minute.

8. **Potentilla paradoxa** Nutt.; T. & G. Fl. N. Am. **1**: 437. 1840.

Potentilla supina Michx. Fl. Bor. Am. 1: 304. 1803. Not *P. supina* L. 1753.
Tridophyllum paradoxum Greene, Leaflets 1: 189. 1905.

Stem spreading or ascending, seldom erect, about 2–5 dm. high, leafy, at first subsimple, later much branched, sparingly hairy, or glabrate below, hirsute above; stipules broadly ovate, acute, 5–15 mm. long, generally toothed and ciliate; leaves short-petioled, pinnate, the lower with 4–5 pairs of leaflets, in age nearly glabrous, and of a light-green color; petioles 2–4 cm. long, sparingly hairy; leaflets obovate-cuneate, deeply crenate or cleft with rounded obtuse teeth, 1–2 cm. long; flowers about 7 mm. in diameter, in a branched leafy cyme; hypanthium sparingly hirsute, in age 7–9 mm. in diameter; bractlets and sepals oblong-ovate, acute or mucronate, 3–4 mm. long, about equal in length; petals yellow, obovate-cuneate, truncate or slightly emarginate, about equaling or sometimes exceeding the sepals; stamens 15–20, with short filaments and anthers, the latter with nearly spherical sacs; pistils very numerous; styles terminal, fusiform; achenes with a thick corky swelling on the inner side.

TYPE LOCALITY: Banks of the Ohio.
DISTRIBUTION: In low ground from New York and Ontario to Washington and New Mexico; also in Mexico and eastern Asia.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 62, f. 3*; Britt. & Brown, Ill. Fl. *f. 1925*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 5*.

9. **Potentilla Nicolletii** (S. Wats.) Sheldon, Minn. Bot. Stud. **1**: 16. 1884.

Potentilla supina Nicolletii S. Wats. Proc. Am. Acad. 8: 553. 1873.
Tridophyllum Nicolletii Greene, Leaflets 1: 189. 1905.

Stems spreading, more branched and more hairy than in *P. paradoxa*, very slender; stipules broadly ovate, acute, subentire or sinuate, 5–10 mm. long; lower leaves pinnate with few leaflets, the upper trifoliolate and much reduced, sparingly hairy and thin; leaflets obovate-cuneate with more acutish teeth than in *P. paradoxa*, 5–25 mm. long, the terminal generally much larger than the lateral ones; flowers falsely racemose, from the axils of the reduced upper leaves, about 5 mm. in diameter; hypanthium sparingly hirsute, in fruit very short and broad, about 6 mm. in diameter; bracts and sepals oblong-ovate, 3 mm. long, mucronate, subequal, or the bracts a little smaller; petals obovate-cuneate, about

equaling the sepals; stamens 10–15; pistils numerous; styles terminal, fusiform; achenes smooth, with a thick corky swelling on the inner side.

TYPE LOCALITY: Devil's Lake [North Dakota].
DISTRIBUTION: North Dakota to Missouri and Kansas.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1926;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 6.*

10. **Potentilla rivalis** Nutt.; T. & G. Fl. N. Am. **1**: 437. 1840.

Tridophyllum rivale Greene, Leaflets 1: 189. 1905.

Stem erect and simple, branched above, often tinged with brown or purple, finely villous-hirsute, leafy; stipules broadly ovate, 1–2 cm. long, often coarsely toothed; lower leaves pinnate with two pairs of approximate leaflets, the upper trifoliolate, sometimes all trifoliolate; leaflets 2–5 cm. long, obovate, with coarse ovate teeth; cyme leafy, with ascending branches; flowers on short pedicels, less than 5 mm. in diameter; hypanthium hirsute, in age about 5 mm. in diameter; bractlets oblong, obtuse or acute, about 3 mm. long, rather shorter than the ovate acute sepals; petals cuneate, much shorter than the sepals; stamens about 10; pistils numerous; styles terminal, fusiform; achenes smooth.

TYPE LOCALITY: Alluvial soil along Lewis River [Snake River].
DISTRIBUTION: River valleys from British Columbia to Saskatchewan and Mexico.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 61;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 7.*

11. **Potentilla millegrana** Engelm.; Lehm. Delect. Sem. Hort. Hamb. **1849**: 11. 1849.

Potentilla rivalis millegrana S. Wats. Proc. Am. Acad. 8: 553. 1873.
Potentilla Nicolletii Sheldon, Minn. Bot. Stud. 1: 16, in part. 1894. Not *P. supina Nicolletii* S. Wats. 1873.
Potentilla leucocarpa Rydb. in Britt. & Brown, Ill. Fl. 2: 212. 1897.

Stem slender and branched throughout, 4–8 cm. high, divaricate, softly pubescent, sometimes nearly glabrous; stipules lanceolate or oval, generally subentire, acute, 3–10 mm. long; leaves ternate, finely pubescent, generally somewhat pale and thin; petioles of the lower leaves 3–8 cm. long; leaflets oblong-cuneate, deeply serrate, 1–6 cm. long, the middle one often petiolulate; cyme much branched, spreading, leafy, but the leaves much reduced; flowers 3–4 mm. in diameter, on slender pedicels; hypanthium soft-pubescent, in fruit about 5 mm. in diameter; bractlets and sepals oblong-ovate, acute, about the same length, but the former a little narrower, 3–4 mm. long; petals oblong-cuneate, about half as long as the sepals, light-yellow; stamens generally 10, with didymous anthers; pistils numerous; styles terminal, fusiform; achenes smooth, light-colored, small.

TYPE LOCALITY: [St. Louis, Missouri,] North America.
DISTRIBUTION: River valleys, from Illinois to Manitoba, Washington, California, and New Mexico.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1924;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 8.*

12. **Potentilla michoacana** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 44. 1898.

Spreading from an annual root, finely pubescent, divergently branched; leaves ternate with shortly stalked terminal leaflets; leaflets narrowly cuneate, few-toothed above the middle, 1–2 cm. long, finely puberulent; bractlets oblong, about equaling the broadly ovate sepals; petals white, obovate, truncate, half the length of the sepals; stamens 5.

TYPE LOCALITY: State of Michoacan, Mexico.
DISTRIBUTION: Known only from the type locality.

13. **Potentilla biennis** Greene, Fl. Fran. **1**: 65. 1891.

Potentilla millegrana S. Wats. Bot. King's Expl. 85, in part. 1871. Not *P. millegrana* Engelm. 1849.
Potentilla lateriflora Rydb. Bull. Torrey Club **23**: 261. 1896.
Potentilla millegrana lateriflora Engelm.; Rydb. Bull. Torrey Club **23**: 261, as synonym. 1896.
Tridophyllum bienne Greene, Leaflets 1: 189. 1905.

Annual or biennial; stems often several from the root, 3–5 dm. high, terete, finely and rather densely pubescent and more or less glandular, often tinged with red or purple, simpler

than in related species and with erect branches; stipules small, ovate or oblong, entire or toothed; leaves all ternate, the lower with petioles 2–10 cm. long, more or less hairy; leaflets broadly obovate, coarsely crenate, 2–4 cm. long and 1–3 cm. wide, the teeth often mucronulate; flowers small, about 5 mm. in diameter, on pedicels 5–15 mm. long from the axils of upper leaves, making the branches finally resemble leafy racemes; hypanthium glandular-pubescent, in fruit about 5 mm. in diameter; bractlets ovate-lanceolate or oblong, acute, a little shorter than the ovate-acute sepals; petals yellow, obovate-cuneate, sometimes slightly emarginate, much shorter than the sepals; stamens about 10; pistils very numerous; styles terminal, thickened and glandular at the base; ripe achenes whitish, smooth.

TYPE LOCALITY: Butte County, California.
DISTRIBUTION: British Columbia to Saskatchewan, Colorado, Arizona, and Lower California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 9.*

14. **Potentilla flavovirens** Rydberg, sp. nov.

Annual or biennial, whole plant light-green; stem strict, 1.5–3 dm. high, densely and softly pubescent, branched above with strongly ascending branches; basal leaves ternate; petioles 1–3 cm. long, softly pubescent; leaflets cuneate-obovate, 5–15 cm. long, coarsely crenate, softly hirsute, and slightly glandular-pruinose; stem-leaves similar but leaflets more oblong-obovate, often 2 cm. long, scarcely glandular, the upper short-petioled; stipules ovate-lanceolate, often almost 1 cm. long; infloresence often corymbiform; hypanthium hemispheric, softly pubescent, in fruit 4–5 mm. broad; bractlets lanceolate, about 4 mm. long, nearly equaling the ovate sepals; petals yellow, ovate, scarcely half as long as the sepals; stamens about 20; pistils very numerous; styles short and fusiform.

Type collected in the mountains of northern Lower California, in 1885, *C. R. Orcutt* (herb. Columbia Univ.).

15. **Potentilla Kelseyi** Rydberg, sp. nov.

Biennial; stem stout, 6–7 dm. high, glandular-villous, branched above and leafy; leaves ternate, the basal and the lower cauline ones with petioles 8–12 cm. long and glandular-villous; leaflets obovate or cuneate-obovate, 3–5 cm. long. incised-crenate with large ovate teeth, thin, sparingly pubescent on both sides; the upper stem-leaves with shorter petioles; stipules lance-oblong, acute or obtuse, 1–1.5 cm. long; inflorescence rather short and compact; hypanthium rather flat in fruit, 5 mm. wide; bractlets and sepals subequal, 5 mm. long, linear-lanceolate; petals obcordate, apparently white, about half as long as the sepals; pistils rather few for the group.

Type collected in the vicinity of Helena, Montana, in 1891, *F. D. Kelsey* (herb. N. Y. Bot. Gard.).

16. **Potentilla flexuosa** Raf. Aut. Bot. 164. 1840.

Potentilla labradorica Lehm. Delect. Sem. Hort. Hamb. 1849: 12. 1849.
Potentilla monspeliensis labradorica Fernald, Rhodora **10**: 50. 1908.

Apparently perennial or at least biennial; stem ascending or erect, 1–4 dm. high, glabrous or nearly so, or softly and sparingly silky-villous above; leaves ternate, the lower with petioles 5–10 cm. long, glabrous; leaflets broadly obovate or rotund, thin, 2–4 cm. long, glabrous, coarsely crenate with broad rounded teeth; stipules ovate or ovate-lanceolate, 1–1.5 cm. long, glabrous or nearly so, entire or toothed; upper stem-leaves similar but with short petioles and narrower leaflets; inflorescence short; hypanthium rather flat, sparingly pubescent, in fruit a little over 5 mm. wide; bractlets oval or elliptic, usually obtuse, about 4 mm. long; sepals ovate, acute, about 5 mm. long; petals broadly obcordate with an open notch at the apex, yellow, almost equaling the sepals; stamens about 20; pistils numerous; styles short, fusiform.

TYPE LOCALITY: Labrador.
DISTRIBUTION: Subarctic America from Labrador to Fort Good Hope on the lower Mackenzie River.

17. **Potentilla leurocarpa** Rydberg, sp. nov.

Annual or biennial; stem about 6 dm. high, often tinged or spotted with red or purple, softly hirsute throughout; leaves ternate; petioles of the basal and lower cauline leaves 3–6 cm. long, hirsute; leaflets broadly obovate or rounded, 1.5–4 cm. long, sparingly pubescent, coarsely toothed with ovate, obtuse teeth; upper stem-leaves short-petioled and with narrower leaflets; stipules ovate to lanceolate, toothed or entire, acuminate; inflorescence cymose and rather dense; hypanthium softly hirsute, flattish, 6–7 mm. broad in fruit; bractlets oval, obtuse, 5–7 mm. long, about equaling the ovate sepals; petals light-yellow, broadly obcordate with a narrow notch at the apex, nearly equaling the sepals; stamens 15–20; pistils numerous; styles short, fusiform; achenes light-colored and smooth.

Type collected on bottom-land near Bingen, Washington, in 1891, *W. N. Suksdorf 2011* (herb. N. Y. Bot. Gard.).

18. **Potentilla monspeliensis** L. Sp. Pl. 499. 1753.

Potentilla norvegica L. Sp. Pl. 499. 1753.
Fragaria monspeliensis Crantz, Inst. **2**: 179. 1766.
Fragaria norvegica Crantz, Inst. **2**: 179. 1766.
Fragaria parviflora Lam. Fl. Fr. **3**: 113. 1778.
Potentilla hirsuta Michx. Fl. Bor. Am. **1**: 303. 1803.
Potentilla Morisoni DC. Cat. Pl. Hort. Monsp. 135. 1813.
Potentilla grossa Dougl.; Hook. Fl. Bor. Am. **1**: 193, as synonym. 1832.
Potentilla millegrana Douglas; Hook. Fl. Bor. Am. **1**: 193, as synonym. 1832.
? *Potentilla dichotoma* Raf. Aut. Bot. 163. 1840.
Potentilla norvegica hirsuta T. & G. Fl. N. Am. **1**: 436. 1840.
Potentilla monspeliensis norvegica Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 46. 1898.
Tridophyllum monspeliense Greene, Leaflets **1**: 189. 1905.
Tridophyllum norvegicum Greene, Leaflets **1**: 189. 1905.

Stems stout and very leafy, 3–8 dm. high, ascending or erect, often tinged with red or brown, often several from the annual or biennial root, branched above, hirsute with long and spreading hairs; stipules broadly ovate, 1–4 cm. long, usually toothed; lower leaves with hirsute petioles 3–10 cm. long, the uppermost subsessile, more or less hirsute, all digitately 3-foliolate or, in luxuriant forms, the lower sometimes digitately or pinnately 5-foliolate; leaflets in the American form usually obovate, 3–10 cm. long, serrate with usually broad teeth, in the European (*P. norvegica*) more oblong and with longer teeth; cyme usually dense and leafy; flowers on short pedicels, about 1 cm. in diameter; hypanthium hirsute, in fruit about 7–8 mm. in diameter, and with the sepals of about the same length; bractlets and sepals oblong-lanceolate, acute, nearly of the same length; petals light-yellow, obovate, or cuneate, truncate or with a shallow, broad emargination, nearly equaling the sepals; stamens generally 20, sometimes only 15; anthers cordate, didymous; pistils numerous; styles terminal, fusiform and glandular below; achenes usually rugulose when ripe.

TYPE LOCALITY: [Botanical Garden,] Montpellier, France.
DISTRIBUTION: Rich soil and waste places, from Labrador to the District of Columbia, Kansas, Mexico, California, and Alaska; also in Europe and Asia.
ILLUSTRATIONS: Nestler, Monog. Potent. *pl. 9, f. 1;* Britt. & Brown, Ill. Fl. *f. 1922;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 9;* Dietr. Fl. Bor. **12**: *pl. 797;* Fl. Dan. *pl. 171;* Sturm, Deuts. Fl. **92**: *pl. 2.*

19. **Potentilla pentandra** Engelm.; T. & G. Fl. N. Am. **1**: 447. 1840.

Potentilla rivalis pentandra S. Wats. Proc. Am. Acad. **8**: 553. 1873.
Potentillopsis Engelmanniana Opiz, Lotos **7**: 30. 1857.
Tridophyllum pentandrum Greene, Leaflets **1**: 189. 1905.

Annual; stems stout, very leafy, 3–7 dm. high, erect, often tinged with brown, finely hirsute and much branched above; stipules broadly ovate-acuminate, 1–2 cm. long, deeply toothed; lower leaves pedately 5-foliolate, or 3-foliolate with the lateral leaflets 2-cleft, with hirsute petioles 3–8 cm. long; the uppermost 3-foliolate and very short-petioled; leaflets 2–10 cm. long, oblong to oblanceolate or cuneate, deeply serrate, pubescent on both sides; cyme very dense and leafy, in age, as a rule, flat-topped; flowers on short hirsute pedicels, less than 5 mm. in diameter; hypanthium sparingly hirsute and finely pubescent, in age about 5 mm. in diameter; bractlets oblong, acute, about 3 mm. long, nearly as long as the ovate acute sepals but much narrower; petals pale-yellow, obovate, scarcely half as

long as the sepals; stamens seldom more than 5, very small, with didymous anthers; pistils exceedingly numerous; styles terminal, short-fusiform and glandular below; achenes smooth, brownish.

TYPE LOCALITY: Fort Gibson, Arkansas.
DISTRIBUTION: Bottom-land, especially in sandy soil, from Missouri and Arkansas to Saskatchewan, Alberta, and Nebraska.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 62, f. 4;* Britt. & Brown, Ill. Fl. *f. 1923;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 11.*

IV. **Arenicolae.** Plants originally described as annuals, but the root is evidently biennial or perennial. Flowers small, white; receptacle beset with bristles exceeding the ovaries in length; style long and slender, a little thickened and glandular near the base. Leaves pinnate with 11–21 dissected leaflets.

20. **Potentilla Newberryi** A. Gray, Proc. Am. Acad. **6**: 532. 1865.

Ivesia gracilis A. Gray, in Newb. Pac. R. R. Rep. 6[3]: 72. 1857. Not *P. gracilis* Dougl. 1829.
Potentilla Newberryi arenicola Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 112. 1898.

Stems 2–4 dm. high, erect or spreading in the variety, slightly silky-villous, leafy, but stem-leaves rather small; stipules linear; basal leaves pinnate, with 3–10 pairs of slightly silky-villous leaflets divided to near the base into 3–5 oblong-spatulate or linear segments; stem-leaves similar, but with 2–4 pairs of less divided leaflets; cyme diffuse, with slender pedicels, which are at last drooping, but not abruptly reflexed just below the hypanthium; hypanthium villous, about 5 mm. in diameter; bractlets and sepals ovate-lanceolate, subequal, 4 mm. long; petals white, obcordate, exceeding the sepals; stamens 20; pistils numerous; styles slender, but glandular and somewhat thickened below.

TYPE LOCALITY: Banks of Rhett Lake [California or Oregon].
DISTRIBUTION: Washington to northern California.
ILLUSTRATIONS: Pac. R. R. Rep. 6[3]: *pl. 11;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 49; pl. 45, f. 1* (var. *arenicola*).

V. **Argenteae.** Perennials, with leafy stems and more or less leafy many-flowered cymes. Flowers small. Petals slightly exceeding the sepals, yellow, obovate, and slightly emarginate. Stamens 20, with rather short filaments. Pistils numerous; styles short, rather stout, but neither thickened nor glandular at the base.

21. **Potentilla collina** Wibel, Prim. Fl. Werth. **2**: 267. 1799.

Perennial; stems many from the short rootstock, spreading or ascending, weak, glabrous or tomentose; stipules small, less than 5 mm. long, lanceolate, acuminate; basal leaves many, on long strigose petioles 1–1.5 dm. long, digitate with 5 leaflets, smooth or puberulent above, grayish-tomentose beneath; leaflets broadly cuneate, 15–25 mm. long, deeply toothed above the middle with oblong-ovate obtuse teeth, and with flat, not revolute, margins; upper stem-leaves ternate, with oblong few-toothed leaflets; hypanthium grayish-tomentose, in fruit 5–7 mm. broad; bractlets and sepals subequal, oblong, obtuse or acute, nearly 4 mm. long; petals obcordate, cuneate, emarginate, a little exceeding the calyx; stamens 20; pistils many; styles filiform, short.

TYPE LOCALITY: Wertheim, Germany.
DISTRIBUTION: Western and central Europe; sparingly introduced in Minnesota and Massachusetts.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 10;* Dietr. Fl. Bor. **12**: *pl. 798;* Sturm, Deuts. Fl. **91**: *pl. 9;* Bot. Cab. **8**: *pl. 706.*

22. **Potentilla argentea** L. Sp. Pl. 497. 1753.

Fragaria argentea Crantz, Inst. **2**: 177. 1766.
Potentilla argentea dentata, DC. Prodr. **2**: 577. 1825.
Potentilla argyrops Raf. Aut. Bot. 165. 1840.
Hypargyrium argenteum Fourr. Ann. Soc. Linn. Lyon II. **16**: 371. 1868.

Perennial; stems many from the rootstock, rather bushy, branched and leafy, 1–5 dm. high, ascending, grayish-tomentose, or glabrate in age, often tinged with brown or purple; stipules from ovate-lanceolate and rarely 2–3-toothed to nearly linear and entire; leaves digitate, all except the uppermost with 5 leaflets, glabrous and green above, white-tomen-

tose beneath, rather coriaceous; petioles tomentose, 1–3 cm. long; leaflets obovate or cuneate, 1–3 cm. long, entire at the base, then deeply divided into narrow, oblong or linear divisions which are acute and with revolute margins; hypanthium tomentose, in fruit seldom over 5 mm. in diameter; bractlets oblong, obtuse, nearly equaling the ovate, acute, mucronate, or obtuse sepals, about 3 mm. long; petals obovate-cuneate, emarginate, scarcely exceeding the calyx; stamens about 20; pistils numerous; styles filiform, short.

TYPE LOCALITY: Europe.
DISTRIBUTION: Nova Scotia to the Dakotas, Kansas, and District of Columbia.
ILLUSTRATIONS: Dietr. Fl. Bor. 4: *pl. 273*; Sturm, Deuts. Fl. 17: *pl. 7*; Engl. Bot. *pl. 89*; Britt. & Brown, Ill. Fl. *f. 1914*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 13*.

23. **Potentilla intermedia** L. Mant. 76. 1767.

Potentilla digitato-flabellata A. Br. & Bouché, Ind. Sem. Hort. Berol. 1851: 14. 1851.

Perennial; stem 4–7 dm. high, usually ascending, very leafy and much branched, green or tinged with brown or purple, finely pubescent and with sparse long hairs; stipules ovate, acute, mostly entire; leaves green and finely hirsute on both sides and somewhat tomentulose beneath; basal ones on petioles 1–2 dm. long, digitate, with 5 obovate or cuneate leaflets 3–6 cm. long; stem-leaves quinate or ternate, with oblong or oblanceolate leaflets, the lower short-petioled, the upper sessile, the teeth ovate-oblong, rather obtuse; hypanthium hirsute, in fruit 6–8 mm. in diameter; bractlets oblong or oblong-oval, obtuse or acute, nearly equaling the triangular-ovate acute sepals, 4 mm. long; flowers nearly 1 cm. in diameter; petals obcordate, about equaling the sepals; stamens about 20; pistils numerous; styles filiform, short.

TYPE LOCALITY: Switzerland.
DISTRIBUTION: Mountain regions of Europe, Scandinavia, and the Baltic Provinces; sparingly introduced into the northeastern United States, as far west as Michigan.
ILLUSTRATIONS: Nestler, Monog. Potent. *pl.* 8; Lehm. Rev. Potent. *pl. 41*; Britt. & Brown, Ill. Fl. *f. 1916*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 12*.

24. **Potentilla inclinata** Vill. Hist. Pl. Dauph. 3: 567. 1789.

Potentilla canescens Besser, Prim. Fl. Gal. 1: 330. 1809.
Hypargyrium suberectum Fourr. Ann. Soc. Linn. Lyon II. 16: 371. 1868.
Potentilla pilosa Macoun, Cat. Can. Pl. 1: 139. 1883. Not *P. pilosa* Vill. 1889.

Perennial; stem rather simple, erect, or seldom decumbent at the base, leafy, more or less grayish-tomentulose and sparingly hirsute, furnished above with rather erect branches, 4–6 dm. high; stipules lanceolate, entire; leaves, except the uppermost, quinate, silky-hirsute on both sides and grayish-tomentulose beneath; leaflets oblanceolate, deeply toothed with oblong, rather acute teeth, 2–4 cm. long; hypanthium hirsute and tomentulose, in fruit 7–10 mm. broad; bractlets lanceolate, acute, equaling the ovate-lanceolate, acute or acuminate sepals, about 4 mm. long; petals broadly cuneate-obovate, slightly emarginate, equaling or slightly exceeding the calyx; stamens about 20; pistils numerous; styles filiform, short.

TYPE LOCALITY: Vicinity of Sigaye, Dauphiné, France.
DISTRIBUTION: Europe and western Asia; introduced and established at Kingston, Ontario, and Buffalo, New York.
ILLUSTRATIONS: Sturm, Deuts. Fl. 91: *pl. 8*; Vill. Hist. Pl. Dauph. 3: *pl. 45*.

VI. **Rectae.** Tall erect perennials. Leaves digitately 5–9-foliolate (usually 7-foliolate), strongly veined and strongly hairy. Flowers large, borne in more or less flat-topped cymes. Petals large, obcordate. Stamens about 30. Pistils numerous; styles filiform, but short. Achenes strongly reticulate.

25. **Potentilla recta** L. Sp. Pl. 497. 1753.

Potentilla obscura Willd. Sp. Pl. 2: 1100. 1800.
Potentilla corymbosa Moench, Meth. Suppl. 279. 1802.
Potentilla hirta obscura Seringe, in DC. Prodr. 2: 579. 1825.
Potentilla recta obscura Koch, Syn. Fl. Germ. & Helv. 213. 1838.
Hypargyrium rectum Fourr. Ann. Soc. Linn. Lyon II. 16: 372. 1868.

Perennial; stem tall and strict, generally over 5 dm. high, sparingly hirsute, the long hairs often intermixed with a finer pubescence; leaves dark-green, very strongly veined,

digitate, with 5–8 broadly oblanceolate leaflets, which are cut more than halfway to the midrib into lanceolate-triangular divergent teeth; cyme branched, many-flowered; sepals and bractlets subequal, lanceolate, 6–7 mm. long, almost equaling the bright and rather dark-yellow petals; stamens about 30; pistils numerous; styles filiform but short; achenes reticulate.

TYPE LOCALITY: Italy.
DISTRIBUTION: Europe and northern Asia; occasionally introduced in Maine, Ontario, and New York.
ILLUSTRATIONS: Fl. Dan. *pl. 1820;* Sturm, Deuts. Fl. 91: *pl. 5.*

26. **Potentilla sulphurea** Lam. Fl. Fr. 3: 114. 1778.

Potentilla recta Willd. Sp. Pl. 2: 1099. 1800. Not *P. recta* L. 1753.
Potentilla pallida Lag.; Besser, Enum. Pl. Volh. 69. 1822.
Potentilla recta pallida Lehm. Stirp. Pug. 9: 47. 1851.

Perennial; stems tall, 4–7 dm. high, strict and leafy, branched above, finely pubescent and with scattered long hairs, pale-green; stipules ovate in outline, 1–1.5 cm. long, generally pectinately toothed; lower leaves digitate, of about 7 leaflets, with petioles about 1 dm. long, sparingly pubescent and hirsute on both sides, pale-green, strongly veined, the upper 5-foliolate and short-petioled and the uppermost ternate and sessile; leaflets narrowly oblanceolate, deeply toothed, with triangular-acute divergent teeth; hypanthium hirsute, in fruit 12–15 cm. in diameter; bractlets oblong-lanceolate, about equaling the triangular-lanceolate acute sepals, which are 6–8 mm. long; corolla about 20 mm. in diameter; petals obovate, deeply emarginate, sulfur-yellow, about 1 cm. long; stamens about 30; pistils numerous; styles filiform, but short; achene reticulate when mature.

TYPE LOCALITY: Mountains of the southern provinces [France].
DISTRIBUTION: Native of Europe and northwestern Asia; sparingly established from Vermont to the District of Columbia, Illinois, and Michigan.
ILLUSTRATIONS: Dietr. Fl. Bor. 4: *pl. 238;* Nestler, Monog. Potent. *pl. 6* (as *P. recta*); Sturm, Deuts. Fl. 91: *pl. 4;* Reichenb. Icon. Crit. 4: *pl. 339, f. 520;* Britt. & Brown, Ill. Fl. *f. 1917;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 27.*

VII. **Heptaphyllae.** Slender perennials. Leaves digitately 5–7-foliolate, with thin, green leaflets. Flowers few on long pedicels, middle-sized. Petals obcordate, nearly twice as long as the sepals. Pistils many; styles filiform.

27. **Potentilla leptophylla** Rydberg, sp. nov.

Potentilla heptaphylla S. Wats. Proc. Am. Acad. 17: 353; hyponym. 1882. — Rydb. Mem. Dep. Bot. Columbia Univ. 2: 62. 1898. Not *P. heptaphylla* Mill. 1768.

Perennial; stem slender, 3–4 dm. high, sparingly silky, 1–2 leaved; basal leaves digitately 5-foliolate; petioles 1–2 dm. long, slender, sparingly ciliate; leaflets 3–6 cm. long, obovate, thin, coarsely serrate, sparingly ciliate on the margins and the veins beneath and with scattered hairs above, often petiolulate; stem-leaves much reduced, the lower ternate, the upper unifoliolate; cyme narrow, almost racemiform; bractlets elliptic, acutish, 4–5 mm. long, almost equaling the similar sepals; petals yellow, obcordate, nearly twice as long as the sepals, 8 mm. long; stamens about 25, with long slender filaments; pistils many; styles filiform.

Type collected in the Caracol Mountains, Coahuila, Mexico, in 1880, *Edward Palmer 327* (U. S. Nat. Herb. *no. 40223*).
DISTRIBUTION: Known only from the type locality.

VIII. **Nuttallianae.** Erect perennials, with short rootstocks or caudices; leaves digitately 5–9-foliolate or the upper ones 3-foliolate, more or less pubescent, but not tomentose or rarely slightly so beneath. Flowers cymose but usually rather few, middle-sized or rarely large. Petals obcordate. Stamens about 20. Pistils numerous; styles filiform. Achenes smooth.

28. **Potentilla brunnescens** Rydb. Bull. Torrey Club 28: 173. 1901.

A tall strict perennial with short scaly rootstock; stem 4–5 dm. high, tinged especially above with brown or purplish, with spreading pubescence; basal leaves digitately 5–7-folio-

late; petioles often 2 dm. long, villous with spreading hairs; leaflets 4–7 cm. long, broadly oblanceolate in outline, brownish-strigose on both sides, paler beneath, pectinately divided to near the midrib; segments linear, obtuse; stem-leaves similar but short-petioled or subsessile, smaller; cyme many-flowered, corymbiform; hypanthium and calyx villous-strigose; bractlets linear, obtuse, about half as long as the ovate-lanceolate acute sepals, which are 4–6 mm. long; petals yellow, 5–6 mm. long, obovate; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Spread Creek, in the Teton Forest Reserve, Wyoming.
DISTRIBUTION: Mountains from Colorado to Montana.

29. **Potentilla Nuttallii** Lehm. Stirp. Pug. 9: 44. 1851.

Potentilla recta Nutt. Gen. 1: 310. 1818. Not *P. recta* L. 1753.
Potentilla rigida Nutt. Jour. Acad. Phila. 7: 20. 1834. Not *P. rigida* Wall. 1828.
Potentilla chrysantha Lehm. in Hook. Fl. Bor. Am. 1: 193. 1832. Not *P. chrysantha* Trev. 1818.
Potentilla gracilis rigida S. Wats. Proc. Am. Acad. 8: 557. 1873.
Potentilla gracilis chrysantha Rydb. Fl. Neb. 21: 16. 1895.

Perennial, with a short rootstock; stem 6–8 dm. high, stout, sparingly hirsute, branched above; stipules lanceolate, acute, subentire; basal leaves many, digitate, with about 7 leaflets, prominently veiny and sparingly hirsute, not at all tomentose beneath, green, usually glandular-granuliferous; petioles 1–3 dm. long, pubescent with usually appressed hairs; leaflets 5–10 cm. long, oblanceolate, toothed or divided nearly halfway to the midrib, with large triangular-divergent, acute teeth; stem-leaves smaller and short-petioled; cyme many-flowered; hypanthium hirsute, in fruit about 1 cm. in diameter; bractlets linear to lanceolate, generally shorter than the ovate-lanceolate, long-acuminate sepals, which are 5–7 mm. long; petals yellow, obovate, emarginate, 6–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Fort Mandan [Dakota].
DISTRIBUTION: Mountain valleys from Saskatchewan to British Columbia, Colorado, and Oregon.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 33*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 26*.

30. **Potentilla Townsendii** Rydb. Bull. Torrey Club 28: 174. 1901.

? *Potentilla nervata* M. E. Jones, Contr. West. Bot. 12: 15. 1908.

A slender perennial with a deep root, and a short caudex covered by the brown remains of old leaves; stem ascending, 3–5 dm. high, sparingly silky; petioles of the digitate basal leaves 7–10 mm. long, slightly appressed-hairy; stipules adnate to the petioles, the free portion linear-subulate; leaflets 5–7, oblanceolate to almost linear, serrate, acute, glabrous above, sparingly hairy beneath, principally on the veins; stem-leaves 2 or 3, similar, but with shorter petioles; stipules large, 3–4 cm. long, lanceolate or ovate-lanceolate; cyme rather open; hypanthium and calyx silky-strigose; bractlets linear-lanceolate, 6–8 mm. long, equaling the lanceolate sepals; petals yellow, broadly obcordate, about 1 cm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Sierra Madre, near Colonia Garcia, Chihuahua, Mexico.
DISTRIBUTION: Sierra Madre, Chihuahua.

31. **Potentilla angustata** Rydberg, sp. nov.

Perennial, with a short rootstock and caudex; stem slender, strict, about 8 dm. high, usually with ascending hairs; basal leaves digitately 5–7-foliolate; petioles 1–1.5 dm. long, pubescent, with appressed or slightly spreading hairs; leaflets narrowly oblanceolate, rather copiously hairy on both sides but green; the middle one 4–6 cm. long; the outer, especially if the leaves are 7-foliolate, small, 1–2 cm. long, cut-toothed with lanceolate teeth; lower stem-leaves similar, the upper 3-foliolate and subsessile; inflorescence few-flowered, with slender branches; hypanthium silky, in fruit 6 mm. wide; bractlets linear-lanceolate, about 3 mm. long; sepals ovate-lanceolate, 5–6 mm. long, acuminate; petals 6–7 mm. long, obovate, retuse; stamens about 20; pistils many; styles filiform.

Type collected on the Upper Sacramento River, California, 1894, *F. H. Föster* (herb. N. Y. Bot. Gard.).

32. **Potentilla grosseserrata** Rydberg, sp. nov.

Potentilla Nuttallii S. Wats. Bot. King's Expl. 5: 88, in part. 1871.
Potentilla Blaschkeana Rydb. Mem. Dep. Bot. Columbia Univ. 2: 69, in part. 1898.

Perennial, with a woody root and short caudex; stem stout, 5–7 dm. high, densely pubescent with appressed or ascending hairs; basal leaves digitately 7-foliolate; petioles 1–3 dm. high, densely and coarsely pubescent with appressed or ascending hairs; leaflets oblanceolate, the larger 5–8 cm. long, rather copiously pubescent with short appressed hairs but green on both sides, strongly veined, coarsely serrate with triangular teeth, which are directed forward but usually more or less curved outward; stipules lanceolate, falcate, 1–2 cm. long, entire or slightly toothed; inflorescence many-flowered, open and flat-topped; hypanthium hirsute, in fruit 6–7 mm. broad; bractlets linear-lanceolate, about 3 mm. long, acute; sepals 5–7 mm. long, ovate-lanceolate, acuminate; petals obcordate, 6–7 mm. long; stamens 20; pistils many; styles filiform.

Type collected in the state of Washington, in 1899, *G. R. Vasey 322* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Washington to northern Nevada and northern California.

33. **Potentilla rectiformis** Rydberg, sp. nov.

Perennial, with the habit of *P. recta* and *P. sulphurea;* stem 6–10 dm. high, densely strigose; leaves, except those of the inflorescence, 7-foliolate; petioles with appressed pubescence; leaflets oblanceolate or spatulate, 4–6 cm. long, coarsely cut-toothed with lanceolate teeth curved forward, appressed-pubescent on both sides or glabrate above; stipules ovate, deeply cut-toothed, 1.5–2 cm. long; inflorescence many-flowered, flat-topped; hypanthium strigose, in fruit 7–8 mm. broad; bractlets linear-lanceolate, 5–7 mm. long, about equaling the ovate-lanceolate acuminate sepals; petals obcordate, 6–7 mm. long; stamens about 20; pistils many; styles filiform.

Type collected on grassy gravelly flats at Pullman, Washington, in 1896, *A. D. E. Elmer 69.*
DISTRIBUTION: Type locality and vicinity, also adjacent Idaho and Montana.

34. **Potentilla etomentosa** Rydb. Bull. Torrey Club **24**: 8. 1897.

Perennial, with a thick, somewhat cespitose caudex; stem 4–5 dm. high, slightly appressed-hairy, erect; stipules ovate to lanceolate, entire; leaves with long petioles, digitate, of about 7 leaflets, glabrate above, slightly silky-strigose beneath but without any trace of tomentum; leaflets elliptic-oblanceolate, 3–5 cm. long, crenate or serrate with ovate teeth; hypanthium hirsute, in fruit 6 mm. broad; bractlets oblong or lanceolate, a little shorter than the ovate pointed sepals, which are 4–5 mm. long; petals obcordate, scarcely exceeding the sepals, 5–6 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: California.
DISTRIBUTION: California and western Nevada.

35. **Potentilla jucunda** A. Nelson, Bull. Torrey Club **27**: 32. 1900.

Perennial, with a more or less cespitose caudex; stem slightly appressed-pubescent, slender, 4–7 dm. high; basal leaves several, digitately 5–7-foliolate; petioles 5–20 cm. long, slightly strigose; leaflets 4–7 cm. long, obovate-oblanceolate, green on both sides, nearly glabrous above, slightly appressed-silky beneath, coarsely serrate with lanceolate teeth; stem-leaves smaller, on shorter petioles or the uppermost sessile; cyme open, many-flowered; hypanthium softly pubescent, in fruit about 7 mm. wide; bractlets linear-lanceolate, a little shorter than the broadly lanceolate sepals, which are 4–6 mm. long; petals broadly obcordate, 8–10 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Green Top, Laramie Hills, Wyoming.
DISTRIBUTION: Mountains from Montana to Colorado and Utah.

36. **Potentilla amadorensis** Rydberg, sp. nov.

Perennial, with a tap-root and short caudex; stems 3–4 dm. high, ascending, sparingly appressed-pubescent; basal leaves 5-foliolate; petioles about 1 dm. long, strigose; leaflets obovate, 2–4 cm. long, serrate with ovate teeth, green, appressed-pubescent with short

hairs above, more loosely long-hairy beneath; stem-leaves 3 or 4, the lower similar to the basal leaves, the upper 3-foliolate; stipules 1–1.5 cm. long, lanceolate, usually toothed; cyme flat-topped; hypanthium hirsute, in fruit about 6 mm. broad; bractlets lanceolate, about 3 mm. long; sepals ovate or lance-ovate, about 5 mm. long; petals obcordate, slightly exceeding the sepals; stamens about 20; pistils many; styles filiform.

Type collected on granite, moist places, Bear River (alt. 1650 m.), Amador County, California, in 1896, *Geo. Hansen 1946* (herb. N. Y. Bot. Gard.).

37. **Potentilla macropetala** Rydberg, sp. nov.

Perennial, with a tap-root and short caudex; stem sparingly strigose, ascending or decumbent at the base, 2–4 dm. high; basal leaves usually 5-foliolate; petioles 3–8 cm. long, sparingly strigose; leaflets, especially the middle ones, cuneate, coarsely toothed above the middle, entire at the base, green, appressed-pubescent on both sides with short hairs and sometimes also somewhat puberulent beneath; stem-leaves 2 or 3, ternate, subsessile; stipules lanceolate, entire, 1–1.5 cm. long; inflorescence few-flowered; hypanthium silky, in fruit 8 mm. broad; bractlets linear-lanceolate, 4–5 mm. long; sepals lanceolate or ovate-lanceolate, 6–8 mm. long; petals broadly obcordate, 1 cm. long or more; stamens about 20; pistils many; styles filiform.

Type collected at Tillamook, Oregon, 1894, *F. E. Lloyd* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: From Oregon south to the Mexican boundary, but rare.

38. **Potentilla Parishii** Rydberg, sp. nov.

Perennial, with a cespitose caudex; stems slender, 4–6 dm. high, appressed-silky; basal leaves digitately 5–7-foliolate; petioles 8–15 cm. long, appressed-silky; leaflets obovate or obovate-oblanceolate, 2–5 cm. long, green on both sides, appressed-pubescent with short hairs on the upper and longer ones on the lower side, cut-toothed nearly halfway to the midrib with lanceolate teeth; stem-leaves similar but short-petioled and with narrower leaflets, the upper 3-foliolate; cyme open; stipules lanceolate, acuminate, usually entire; hypanthium hirsute, in fruit 7 mm. broad; bractlets linear-lanceolate, 3–4 mm. long; sepals lance-ovate, acuminate, 6–7 mm. long; petals obcordate, about 7 mm. long; stamens 20; pistils many; styles filiform.

Type collected at Descanso, San Diego County, California, in 1897, *S. B. Parish 4523* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Meadows of southern California; apparently the same species found also in the Sierra Nevada.

39. **Potentilla glabrata** (Lehm.) Rydberg.

Potentilla Nuttallii glabrata Lehm. Rev. Potent. 89. 1856.

Perennial, with a short cespitose caudex; stems slender, 4–6 dm. high; basal leaves digitately 7-foliolate; petioles slender, sparingly strigose, 8–15 cm. long; leaflets 2–5 cm. long, oblanceolate or obovate-oblanceolate, glabrous except the veins beneath, cut-toothed about halfway to the midrib, with lanceolate teeth; stem-leaves similar but smaller and short-petioled, the uppermost 3-foliolate; inflorescence open; hypanthium strigose, in fruit 7–8 mm. wide; bractlets linear or linear-lanceolate, 3–4 mm. long; sepals ovate, acuminate, 5–7 mm. long; petals obcordate, slightly exceeding the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Oregon.
DISTRIBUTION: Oregon and Washington to western Wyoming.

40. **Potentilla dascia** Rydberg, sp. nov.

Perennial, with a short caudex; stem single, erect, 4–7 dm. high, hirsute; basal leaves 7-foliolate; petioles 7–20 cm. long, hirsute; leaflets obovate to oblanceolate, 3–10 cm. long, coarsely and rather densely pubescent on both sides and sometimes obscurely tomentose beneath, coarsely cut-toothed about halfway to the midrib into lanceolate teeth; lower stem-leaves similar; the upper 3–5-foliolate and short-petioled or sessile; stipules lanceolate, 1–2 cm. long, acute, entire; inflorescence open; hypanthium hirsute, in fruit 7–8 mm.

broad; bractlets linear to lanceolate, 4–5 mm. long; sepals lanceolate, 5–6 mm. long; petals obcordate, 7–8 mm. long; stamens 20; pistils many; styles filiform.

Type collected at the Dalles, Oregon, in 1869, *Harford & Dunn 1144* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Washington to California and Montana.

41. **Potentilla Hallii** Rydb. Bull. Torrey Club **28**: 176. 1901.

Perennial, with a short rootstock or caudex; stem about 3 dm. long, ascending or decumbent, sparingly villous-hirsute, terete and light-green; leaves mostly digitately 5-foliolate, or the upper 3-foliolate or simple, more or less reduced; basal petioles 3–5 cm. long, villous-hirsute; leaflets obovate, 1–3 cm. long, coarsely serrate-crenate, green and slightly hairy above, paler and hirsute and sparingly puberulent-tomentulose beneath; upper stipules ovate, entire, 12–15 mm. long; cyme rather open; hypanthium and calyx hirsute, more or less tinged with purple; bractlets ovate-lanceolate, about one third shorter than the ovate acute sepals; petals yellow, about 5 mm. long, scarcely exceeding the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Pine Ridge, Fresno County, California.
DISTRIBUTION: Sierra Nevada and San Bernardino Mountains, California; a more hairy form in Washington.

42. **Potentilla lasia** Rydberg, sp. nov.

Perennial, with a short cespitose caudex; stems ascending or decumbent at the base, densely pubescent with spreading hairs; basal leaves 5–7-foliolate; petioles 3–6 cm. long, densely hirsute with spreading or reflexed hairs; leaflets 2–3 cm. long, oblanceolate, densely hirsute on both sides, green above, grayish beneath, cut-toothed with rather few ovate-oblong teeth; lower leaflets similar, the upper reduced, sessile and 3-foliolate; cyme small and contracted; hypanthium hirsute-villous, in fruit 8–9 mm. broad; bractlets oblong-lanceolate, 4–5 mm. long; sepals ovate, 5–6 mm. long; petals orbicular, emarginate, 6–7 mm. long; stamens 20; pistils many; styles filiform.

Type collected in Bear Valley, San Bernardino Mountains, *S. B. Parish 3252* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains of southern California.

43. **Potentilla oaxacana** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 206. 1898.

Perennial, from a stout tap-root; stem 4–5 dm. high, rather densely pilose, ascending, few-leaved; basal leaves not very thick, rather densely villous-pilose, less so on the upper surface; petioles 5–7 cm. long, striate, silky-villous; leaflets 5, broadly obovate, coarsely crenate, about 5 cm. long, strongly veined; stem-leaves smaller, with 3 leaflets, the lower short-petioled, the uppermost sessile; lower stipules lanceolate, more or less scarious, the upper broadly ovate, herbaceous, and often toothed; cyme rather open; flowers about 15 mm. in diameter; hypanthium pilose; bractlets oblong, nearly equaling the ovate sepals; petals yellow, obovate, exceeding the sepals by fully one half; stamens 20–25.

TYPE LOCALITY: Cuatro Venados, Oaxaca, Mexico.

44. **Potentilla Goldmani** Painter, sp. nov.

Perennial, with a thick woody caudex; stems erect, about 3 dm. high, pubescent with spreading whitish hairs intermixed with short glandular ones; basal leaves several, digitately 5-foliolate; petioles 10 cm. long, pubescent like the stems; stipules lanceolate, attenuate, pilose with white hairs; leaflets obovate or oblong-oblanceolate, crenate with a tip of white hairs at the end of each crenation, 2–3 cm. long, 10–15 mm. wide, rounded at the apex, cuneate at the base, green, pilose and glandular-atomiferous above, pilose beneath, tomentulose on the primary veins; lower stem-leaves trifoliolate, similar to but smaller than the radical leaves, upper ones subsessile with toothed or entire leaflets; cyme open, rather few-flowered; hypanthium and calyx pilose and atomiferous; bractlets oblong, acute, about 5 mm. long; sepals ovate, acute, about equaling the bractlets; petals yellow, broadly obcordate, about 7 mm. long and as broad; pistils many; styles filiform; stamens about 20.

Type collected on the northwest slope of Mt. Zempoaltepec, Oaxaca, 2400 to 3000 m. altitude, July 10, 1894, *E. W. Nelson & E. A. Goldman 691* (type in U. S. Nat. Herb. *no. 569374*.)

IX. **Permolles.** Stout, hoary perennials, with erect stems and much of the habit of the NUTTALLIANAE group, but the leaves densely pubescent on both sides and the stem densely retrorse-hirsute.

45. **Potentilla permollis** Rydb. Bull. Torrey Club 28: 175. 1901.

A stout hoary perennial; stems simple, about 6 dm. high, densely and softly pubescent with long whitish hairs; basal and lower stem-leaves usually 7-foliolate, digitate; petioles about 1 dm. long, densely pubescent with spreading or reflexed hairs; leaflets obovate to oblanceolate, obtuse, coarsely cleft nearly half way to the midrib, with lanceolate lobes, densely soft-pubescent on both sides, greenish above, whitish beneath; upper stem-leaves 3–5-foliolate, similar, smaller, short-petioled; stipules of the stem-leaves large, adnate to the petiole, ovate, often over 3 cm. long; cyme rather open; hypanthium and calyx densely white-pubescent; bractlets linear-lanceolate, about equaling the lanceolate sepals; petals yellow, 6–7 mm. long, obcordate, exceeding the sepals by about one fourth; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Endicott, Whitman County, Washington.
DISTRIBUTION: State of Washington.

X. **Candidae.** Rather low perennials, more or less decumbent at the base. Leaves digitate, the basal ones 5–7-foliolate, those of the stem 3–5-foliolate and much smaller; leaflets cleft more than halfway to the midrib into oblong or linear divisions. Petals obcordate. Stamens about 20. Pistils many; styles filiform.

46. **Potentilla candida** Rydb. Bull. Torrey Club 24: 6. 1897.

Potentilla gracilis var. S. Wats. Bot. King's Expl. 88. 1871.

Perennial; stem low, 1–2 dm. high, densely white silky-strigose; stipules ovate, entire, nearly 1 cm. long; leaves on rather short petioles, densely silvery-silky on both sides, and white-tomentose beneath, digitate; leaflets 7–9, obovate in outline, 2–4 cm. long, rather thick, deeply incised or cleft into large oblong teeth; cyme rather dense; flowers about 1 cm. in diameter; hypanthium white-silky; bractlets lanceolate, much shorter than the ovate sepals, which are about 5 mm. long; petals yellow, obcordate, a little exceeding the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Diamond Valley, Nevada.
DISTRIBUTION: Nevada and southern Utah.
ILLUSTRATIONS: Bull. Torrey Club 24: *pl. 287;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 23.*

47. **Potentilla Elmeri** Rydberg, sp. nov.

Perennial, with a short, cespitose caudex; stem ascending or decumbent at the base, 2–4 dm. high, appressed-silky; basal leaves and rarely the lower cauline ones digitately 7-foliolate; petioles 3–10 cm. long, appressed-silky; leaflets 2–3 cm. long, oblanceolate, deeply dissected into oblong divisions, sparingly appressed-silky above, densely so beneath; middle and upper stem-leaves reduced, 3–5-foliolate; inflorescence open; hypanthium silky-hirsute, in fruit 7 mm. broad; bractlets linear-lanceolate, 3 mm. long; sepals ovate-lanceolate, short-acuminate, 5–6 mm. long; petals obcordate, about 6 mm. long; stamens 20; pistils many; styles filiform.

Type collected in Ventura County, California, in 1902, *A. D. E. Elmer 4009* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Type locality and near Donner Lake.

48. **Potentilla Pecten** Rydberg, sp. nov.

Perennial, with a stout tap-root and a short cespitose caudex; stem 2–3 dm. high, ascending or decumbent at the base, grayish silky-strigose; basal leaves digitately 7-foliolate; petioles silky-strigose, 3–6 cm. long; larger leaflets 3–4 cm. long, elliptic-ovate or oblanceolate, green and appressed-hairy above, more or less tomentose and silky (on the veins) beneath, dissected ½–⅔ to the midrib into oblong acute divisions; stem-leaves few, small, 3–5-foliolate; inflorescence 10–15-flowered; hypanthium silky-strigose; bractlets 2–3

mm. long; sepals ovate, acuminate, 4–5 mm. long; petals broadly obcordate, slightly if at all exceeding the sepals; stamens about 20; pistils many; styles filiform.

Type collected in the Bridger Mountains, Montana, in 1897, *Rydberg & Bessey 4377* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Mountains of Montana and Wyoming.

49. **Potentilla subvillosa** Rydberg, sp. nov.

Perennial, with a short woody caudex; stems 2–3 dm. high, ascending, appressed-villous; basal leaves digitately 5–7-foliolate; petioles 5–7 cm. long, appressed-villous; leaflets cuneate-obovate, about 3 cm. long, silky-villous above and loosely villous-tomentose beneath, more glabrate in age; stem-leaves few and reduced; inflorescence rather dense; hypanthium villous, in fruit 6 mm. wide; bractlets oblong, about 3 mm. long; sepals lanceolate, about 5 mm. long; petals obcordate, 6–7 mm. long; stamens about 20; pistils many; styles filiform.

Type collected at Carson Spur, Alpine County, California, in 1892, *Geo. Hansen 297* (herb. N. Y. Bot. Gard.).

50. **Potentilla Bakeri** Rydb. Bull. Torrey Club **31**: 560. 1904.

Potentilla gracilis S. Wats. Bot. King's Expl. 88, in part. 1871.

Perennial, with a short cespitose caudex; stem 3–5 dm. high, usually decumbent at the base, loosely hirsute; basal leaves digitate, usually 7-foliolate; petioles 6–8 cm. long, loosely hirsute; leaflets oblanceolate, 3–5 cm. long, strongly veined, coarsely appressed-silky on both sides and more or less densely tomentose beneath, cleft about three fourths to the midrib into oblong, acutish or obtusish divisions; stem-leaves smaller, short-petioled, 5-foliolate or the upper 3-foliolate; inflorescence open, usually flat-topped; hypanthium and calyx silky-hirsute, the former 5–6 mm. broad in fruit; bractlets linear-lanceolate, about 3 mm. long and about half as long as the ovate or ovate-lanceolate, acuminate sepals; petals obcordate, a little exceeding the sepals; stamens 20; achenes smooth and shining; pistils many; styles filiform.

TYPE LOCALITY: Grizzly Creek, Colorado.

DISTRIBUTION: Mountain valleys of Colorado, Wyoming, Utah, Nevada, and in California east of the Sierra Nevada.

51. **Potentilla comosa** Rydberg, sp. nov.

Perennial, with a short cespitose caudex; stem ascending or decumbent at the base, about 3 dm. high, loosely white-hirsute; basal leaves digitately 5–7-foliolate; petioles conspicuously white-hirsute; leaflets obovate or elliptic, the larger 3 cm. long, deeply dissected two thirds to the midrib into oblong divisions, loosely hairy on both sides, almost white beneath; lower stem-leaves 5-foliolate, similar to the basal ones, the upper 3-foliolate; inflorescence narrow and dense; hypanthium densely pubescent; bractlets lanceolate, 2 mm. long; sepals ovate, about 4 mm. long; petals rounded-obovate, yellow, about 4 mm. long.

Type collected in Bear Valley, San Bernardino Mountains, in 1894, *S. B. Parish 3152* (U. S. Nat. Herb. *no. 214369*).

XI. **Pectinisectae.** Rather tall, erect perennials. Leaves all 7-foliolate or some rarely 9-foliolate; leaflets divided to near the midrib into linear-oblong or linear-lanceolate divisions. Flowers large or middle-sized. Stamens about 20. Pistils numerous; styles filiform.

52. **Potentilla pectinisecta** Rydb. Bull. Torrey Club **24**: 7. 1897.

Perennial, with a short caudex; stem slender, 3–4 dm. high, ascending, finely silky-strigose or rarely hirsute; stipules ovate, often toothed; leaves digitate, nearly all with 5–9 leaflets, appressed-silky on both sides and sometimes slightly tomentulose beneath; petioles of the basal leaves about 1 dm. long, silky-strigose; those of the stem-leaves shorter; leaflets obovate, deeply pectinately divided into oblong or linear segments; cyme rather dense; hypanthium appressed-silky, in fruit 6–7 mm. broad; bractlets linear-lanceolate,

shorter than the broadly lanceolate sepals, which are 5–6 mm. long, acuminate; petals yellow, obcordate, 7–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Not given, but the type was collected near Salt Lake City, Utah, June 10, 1880, *M. E. Jones 1765* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Utah, Wyoming, and northern Arizona.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 21, f. 2–6.*

53. **Potentilla longiloba** Rydberg, sp. nov.

Perennial, with a thick short woody caudex; stem stout, 3–5 dm. high, hirsute-strigose and woolly; leaves digitately 7-foliolate or the uppermost 3–5-foliolate; petioles of the lower ones 5–10 cm. long, villous; leaflets 3–5 cm. long, dissected to near the midrib into linear or linear-lanceolate divisions, loosely villous above, densely white-tomentose beneath; stipules large, lanceolate, 2–3 cm. long; inflorescence dense and few-flowered; hypanthium densely silky, in fruit 8 mm. broad; bractlets linear-lanceolate, usually equaling the ovate-lanceolate sepals, which are 5–6 mm. long, acuminate; petals obcordate, about 8 mm. long; stamens about 20; pistils many; styles filiform.

Type collected at Lo-Lo, western Montana, in 1897, *Elrod and assistants 110* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Western Montana and northern Idaho.

54. **Potentilla Blaschkeana** Turcz.; Lehm. Hamb. Gart. & Blumenz. **9**: 506. 1853.

Potentilla gracilis S. Wats. Bot. King's Expl. 88, in part. 1871. Not *P. gracilis* Dougl. 1829.
Potentilla flabelliformis ctenophora Rydb. Bull. Torrey Club **24**: 7. 1897.
Potentilla ctenophora Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 75. 1898.

Perennial, with a short caudex; stem stout, 5–8 dm. high, sparingly silky, branched above; stipules large, 1–2 cm. long, lanceolate or ovate-lanceolate, acute, the upper often coarsely toothed; basal leaves digitate, of about 7 leaflets, silky or nearly smooth and green above, white-tomentose beneath, with petioles 5–15 cm. long; leaflets about 5 cm. long, obovate in outline, deeply cleft into linear or oblong divisions, often divergent; stem-leaves similar but smaller and short-petioled; cyme many-flowered; hypanthium silky, in fruit often over 1 cm. in diameter; bractlets oblong-lanceolate, often much shorter than the broadly lanceolate or ovate, long-acuminate sepals, which are 5–6 mm. long; corolla 15–20 mm. in diameter; petals broadly obcordate, deeply notched at the apex, much longer than the sepals; stamens about 20; pistils numerous; styles filiform.

TYPE LOCALITY: Russian Settlement [California].
DISTRIBUTION: Meadows, Alberta to British Columbia, northern California, and northern Wyoming.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 64;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 28, f. 6.*

55. **Potentilla flabelliformis** Lehm. Stirp. Pug. **2**: 12. 1830.

Potentilla gracilis flabelliformis Nutt.; T. & G. Fl. N. Am. 1: 440. 1840.
Potentilla flabelliformis tenuior Lehm. Rev. Potent. 108. 1856.

Perennial, with a short caudex; stem slender but strict, 4–6 dm. high, silky-strigose, branched above; stipules lanceolate or linear; leaves digitate, of about 7 leaflets, densely silky above, white-tomentose beneath; leaflets 3–5 cm. long, pectinately divided into narrowly linear lobes, which are generally stiff and with revolute margins; cyme open but branches rather short and strict; hypanthium silky-villous, in fruit about 8 mm. in diameter; bracts linear-lanceolate, much shorter than the triangular-lanceolate acuminate sepals, which are 4–5 mm. long; corolla 10–12 mm. in diameter; petals obcordate, a little longer than the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: [Not given in the original publication but supplied in Hooker's Flora] Plains of the Saskatchewan.
DISTRIBUTION: Meadows from Saskatchewan to British Columbia, Wyoming, and northern California.
ILLUSTRATIONS: Lehm. Monog. Potent. Suppl. *pl. 6;* Hook. Fl. Bor. Am. 1: *pl. 66;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 28, f. 1–5.*

XII. **Graciles.** Erect, usually rather tall perennials. Leaves digitately 5–7-foliolate; the leaflets obovate or oblanceolate, thin, green above, more or less tomentose beneath, serrate or crenate. Flowers middle-sized or large. Petals obcordate. Stamens about 20. Pistils many; styles filiform.

56. **Potentilla intermittens** Rydberg, sp. nov.

Perennial, with a short cespitose caudex; stems ascending, about 3 dm. high, sparingly hairy; basal leaves 5–7-foliolate; petioles 5–10 cm. long, sparingly silky-strigose; leaflets cuneate-oblanceolate, most of them sharply cut-toothed with lanceolate teeth directed forward, usually entire at the cuneate base, sparingly silky above, grayish tomentose beneath and with appressed-silky veins; stem-leaves 3–5-foliolate, short-petioled; stipules lanceolate, entire, about 1 cm. long; inflorescence few-flowered; hypanthium silky-villose, in fruit 6–7 mm. broad; bractlets linear, 4 mm. long; sepals lanceolate, acuminate, 5–6 mm. long; petals obcordate, 6–7 mm. long; stamens about 20; pistils many; styles filiform. (Perhaps a hybrid between *P. glaucophylla* and *P. filipes*.)

Type collected in Cameron Pass, Colorado, in 1896, *C. F. Baker 25* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains from Alberta to Colorado and Nevada.

57. **Potentilla viridescens** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 69. 1898.

Perennial, with a cespitose caudex; stem 5–7 dm. high, sparingly silky with appressed or slightly spreading hairs, branched above; basal leaves several, with petioles 1–2 dm. long, digitate, with about 7 leaflets, silky but green above, silky and somewhat tomentulose but scarcely white beneath; leaflets oblanceolate or spatulate, deeply toothed or divided nearly halfway to the midrib, with lanceolate often somewhat divergent teeth; stem-leaves smaller, with short petioles; cyme many-flowered, loose and open; hypanthium silky, in fruit about 8 mm. in diameter; bractlets lanceolate, a little shorter than the ovate-lanceolate sepals, both acuminate and about 5 mm. long; corolla 10–15 mm. in diameter, yellow; petals obcordate, equaling or slightly exceeding the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: [In the original description no type was designated, but the following is so designated in the herbarium of the N. Y. Bot. Garden:] Braggs Creek, Alberta, *Macoun 16746*.
DISTRIBUTION: Valleys, Manitoba to Alberta and Wyoming.

58. **Potentilla alaskana** Rydberg, sp. nov.

Perennial, with a thick cespitose rootstock; stem 2–5 dm. high, silky with appressed hairs; petioles of the basal leaves 1–1.5 dm. long; leaves digitately 7-foliolate; leaflets obovate, the middle one 2.5–6 cm. long, coarsely toothed ⅓–½ to the midrib with lanceolate or ovate-lanceolate teeth, dark-green and glabrate above, white-tomentose beneath; stem-leaves few, 3–5-foliolate, rather small; stipules large, ovate-lanceolate, the upper often 2 cm. long, entire or slightly toothed; inflorescence open and corymbiform, flat-topped; hypanthium silky with long spreading hairs; bractlets narrowly linear, 4–5 mm. long; sepals about 8 mm. long, ovate, acuminate; petals broadly obcordate, 9–14 mm. long and fully as broad; stamens 20–25; pistils many; styles filiform.

Type collected on Kadiak Island, Alaska, in 1900, *F. A. Walpole 1201* (U. S. Nat. Herb. *no. 378183*).
DISTRIBUTION: Island of Kadiak.

59. **Potentilla glomerata** A. Nelson, Bull. Torrey Club **26**: 480. 1899.

Potentilla Blaschkeana Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 69, in part. 1898. Not. *P. Blaschkeana* Turcz. 1853.

Perennial, with a thick woody root and a short caudex; stem stout, 4–8 dm. high, softly pubescent with appressed or slightly spreading hairs; basal leaves digitately 7-foliolate; petioles 1–2 dm. long, more or less pubescent with appressed or somewhat spreading hairs; leaflets 4–8 cm. long, oblanceolate or narrowly obovate, cut-toothed with oblong, lanceolate, or triangular teeth, green but densely appressed-hairy above with short hairs, more or less tomentose beneath and silky on the veins; stem-leaves similar but with shorter petioles; inflorescence at first dense, congested, but later more open; hypanthium silky, in fruit about 8 mm. broad; bractlets oblong or lanceolate, shorter than the broadly lanceolate

sepals, which are acuminate and 5–8 mm. long; petals rounded-obcordate, 6–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Bear River at Evanston, Wyoming.
DISTRIBUTION: River bottoms, etc., Montana to Washington, California, and Wyoming.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 25* (as *P. Blaschkeana*).

60. **Potentilla dichroa** Rydberg, sp. nov.

Perennial, with a short caudex; stems strict, 4–6 dm. high, densely white-strigose, often tinged with purple; basal leaves 7-foliolate; petioles 5–10 cm. long, white-strigose; leaflets oblanceolate, 3–6 cm. long, green and appressed-silky above, white-tomentose and silky beneath, cut-toothed nearly halfway to the midrib into lanceolate teeth; stem-leaves similar, but with shorter petioles and the upper 3–5-foliolate; stipules ovate or lanceolate, 1–2 cm. long, entire; inflorescence rather dense, white-silky; hypanthium densely white-silky; bractlets lanceolate, 3–4 mm. long; sepals ovate, acute, 6 mm. long; petals obcordate, 7–8 mm. long; stamens 20; pistils many; styles filiform.

Type collected on Old Sentinel, a mountain near Missoula, Montana, in 1901, *D. T. MacDougal 185* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Western Montana to Oregon, Nevada, and Utah.

61. **Potentilla gracilis** Dougl.; Hook. Bot. Mag. *pl. 2984*. 1830.

Perennial, with a short caudex; stem 4–7 dm. high, slender, slightly silky-villous, with erect or ascending branches; stipules lanceolate, 1–3 cm. long, entire, or with 1 or 2 teeth; basal leaves digitate with 5–7 leaflets; petioles slender, 1–1.5 dm. long, with spreading pubescence; leaflets 3–6 cm. long, oblanceolate, green and nearly glabrous above, densely and finely white-tomentose beneath, divided about halfway to the midrib into lanceolate-triangular coarse teeth; stem-leaves similar but with shorter petioles; cyme rather narrow; hypanthium long-silky, in fruit 8–10 mm. in diameter; corolla 15–20 mm. in diameter; petals obcordate, deeply emarginate, often over 1 cm. long, much exceeding the sepals; bractlets lanceolate, a little shorter than the ovate acuminate sepals, which are 6–7 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Banks of Columbia River.
DISTRIBUTION: British Columbia to western Montana and Oregon.
ILLUSTRATIONS: Bot. Mag. *pl. 2984*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 24*.

62. **Potentilla camporum** Rydberg, sp. nov.

Perennial, with a short caudex; stem simple, strict, 3–4 dm. high, hirsute with spreading or reflexed hairs; basal leaves 7-foliolate; petioles 6–10 cm. long, hirsute; leaflets obovate or broadly oblanceolate, 2–5 cm. long, cut-toothed with lanceolate teeth, densely hirsute-strigose above, white-tomentose and silky beneath; stem-leaves smaller, the uppermost 3-foliolate; stipules lanceolate, entire; hypanthium hirsute, in fruit 6 mm. wide; bractlets lanceolate, 3–4 mm. long; sepals ovate-lanceolate, 4–5 mm. long; petals obcordate, 5–6 mm. long; stamens 20; pistils many; styles filiform.

Type collected in the Black Hills of South Dakota, *Miss Pratt 93* (herb. Columbia Univ.).
DISTRIBUTION: Black Hills of South Dakota to Manitoba.

63. **Potentilla filipes** Rydb. Bull. Torrey Club **28**: 174. 1901.

Potentilla Hippiana pulcherrima S. Wats. Proc. Am. Acad. **8**: 555, in part. 1873.
Potentilla gracilis Porter & Coulter, Syn. Fl. Colo. 37. 1874. Not *P. gracilis* Dougl. 1830.
Potentilla pulcherrima Rydb. Bull. Torrey Club **24**: 5, in part. 1897. Not *P. pulcherrima* Lehm. 1830.

Perennial, with several stems from the short caudex; stems 3–5 dm. high, slender, silky-hirsute or silky-strigose, simple up to the inflorescence, few-leaved; basal leaves mostly 7-foliolate, digitate, with hirsute or strigose petioles 5–15 cm. long; leaflets obovate to oblanceolate, obtuse, coarsely crenate, 2–6 cm. long, green and sparingly strigose above, white-tomentose beneath; stem-leaves similar, but smaller, usually 5-foliolate, short-petioled; stipules ovate-lanceolate, entire or sometimes toothed; cyme open; pedicels very slender, as well as the hypanthium and calyx silky-hirsute and more or less viscid-tomen-

tulose; bractlets linear-lanceolate, a little shorter than the lanceolate acute sepals, which are 5–7 mm. long; petals yellow or somewhat orange, broadly obcordate or obovate and emarginate, 6–8 mm. long, exceeding the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Wahatoya Cañon, Spanish Peaks, Colorado.
DISTRIBUTION: Mountains, valleys, and cañons, from Manitoba to New Mexico, Utah, and Athabasca.

XIII. **Longipedunculatae.** Perennials, with creeping rootstock and axillary long-pedicelled flowers; otherwise agreeing closely with the GRACILES group.

64. **Potentilla longipedunculata** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 39. 1898.

Perennial, by a creeping rootstock; stems 4–5 dm. high, ascending, villous with long silky white hairs, rather weak, and dichotomously branched, with solitary long-pediceled flowers in the axils of the branches; stipules rather large, about 2 cm. long, oblong-lanceolate; leaves digitately 3–5-foliolate, slightly silky and green above, densely white-tomentose beneath; petioles slender, 4–6 cm. long; leaflets oblanceolate, 3–5 cm. long, dissected halfway to the midrib into oblong-lanceolate divergent segments; pedicels solitary in the axils of the leaves, almost 1 dm. long, slender, silky-villous with spreading long hairs; flowers 2 cm. in diameter; sepals and bractlets subequal, oblong-lanceolate, almost equaling the broadly cuneate, scarcely at all emarginate, yellow petals; stamens about 20; pistils very few; receptacle unusually hairy; styles filiform but not very slender.

TYPE LOCALITY: Monmouth, Oregon.
DISTRIBUTION: Known only from the type locality.

XIV. **Subjugae.** This group, as well as the RUBRICAULES, forms the connection between the GRACILES on one hand and the NIVEAE and the LEUCOPHYLLAE on the other. There is a combination of digitate and pinnate characters in the leaves. The pinnate tendency is seen in the small leaflets on the petiole. The species is in size intermediate between *P. gracilis* or *P. filipes* and *P. nivea*, and much resembles depauperate forms of either of the two first or an over-developed *P. nivea*.

65. **Potentilla subjuga** Rydb. Bull. Torrey Club 23: 397. 1896.

Tufted, from a perennial root and cespitose caudex; stems many, 1–3 dm. high, silky-villous, few-leaved, rather divergently branched above, the lower portion covered with the brown scarious lower stipules; upper stipules green, ovate, entire; basal leaves many, digitately 5- (seldom 3-) foliolate with an additional pair of smaller leaflets on the petiole, about 1 cm. below the others; leaflets 1–4 cm. long, oblong or obovate, deeply incised into oblong, rather obtuse segments, silky and green above, silky and white-tomentose beneath; stem-leaves generally ternate, few and reduced in size; hypanthium silky-hirsute, in fruit 5–7 mm. in diameter; bractlets oblong, obtuse or acute, about a third shorter than the triangular-lanceolate acuminate sepals, which are 5–6 mm. long; petals broadly obcordate, exceeding the sepals; stamens about 20; styles filiform, nearly terminal; achenes smooth, many. .

TYPE LOCALITY: Near Empire, Colorado.
DISTRIBUTION: Mountains of Colorado.
ILLUSTRATIONS: Bull. Torrey Club 23: *pl. 274;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 29.*

XV. **Subcoriaceae.** Perennial plants, with thick woody rootstocks or caudices, inhabiting the mountains of Mexico. Leaves mostly basal, green on both sides, digitate, with 5–7 thick toothed leaflets, dark-green and shining above. Flowers middle-sized, in few-flowered cymes. Petals yellow, obcordate. Pistils numerous; styles filiform.

66. **Potentilla subcoriacea** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 63. 1898.

Stem from a thick perennial rootstock, 3–5 dm. high, strigose-villose and more or less glandular upward; leaves dark-green and shining, nearly glabrous, thick, and somewhat

coriaceous, digitate, with 5–7 broadly obovate-cuneate crenate leaflets 3–5 cm. long; inflorescence open, few-flowered; bractlets linear-lanceolate, shorter than the lanceolate sepals; petals yellow, broadly obcordate, 8 mm. long, light-yellow, one half longer than the sepals.

TYPE LOCALITY: [Sierra de las Cruces,] Mexico.
DISTRIBUTION: Known only from the type locality.

67. **Potentilla ranunculoides** Humb. & Bonpl.; Nestler, Monog. Potent. 56. 1816.

? *Potentilla macrorhiza* Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. 7: 292. 1815.

Perennial, with a short woody rootstock; stem short, 1–2 dm. high, erect, few-leaved and few-flowered, slightly silky-strigose; basal leaves digitately 5–7-foliolate; stem-leaves small, ternate, all glabrous except on the veins and the margins; petioles 1–3 cm. long, with rather appressed pubescence; leaflets rounded-obovate, thick, strongly veined, crenate above the middle, 1–2 cm. long; bractlets oblong, obtuse, 2–3 mm. long, about half as long as the lanceolate acuminate strigose sepals; petals obcordate, 5–7 mm. long; stamens about 20; pistils rather few; styles filiform.

TYPE LOCALITY: Cerro de las Cruces, Mexico.
DISTRIBUTION: Mountains of central Mexico.
ILLUSTRATION: Nestler, Monog. Potent. *pl. 3, f. 1.*

68. **Potentilla Rydbergiana** Rose, Contr. U. S. Nat. Herb. 8: 30. 1903.

Perennial, with a thick, woody, cespitose caudex; stem ascending, hirsute, less than 1 dm. high, with 1–3 reduced leaves; basal leaves digitately 5-foliolate; petioles 1–3 cm. long, hirsute; leaflets obovate or elliptic-obovate, 1–2 cm. long, coarsely toothed with rounded-ovate teeth, glabrous above and with scattered long hairs beneath, thick; stipules lanceolate, entire; hypanthium hemispheric, hirsute, in fruit 6–7 mm. wide; bractlets oblong, rounded at the apex, about 4 mm. long, glabrous or sparingly granuliferous; sepals lanceolate, acute, 5 mm. long, glabrous or granuliferous; petals obovate, 8–10 mm. long, bright-yellow, retuse; stamens 20–25; pistils rather few; styles filiform.

TYPE LOCALITY: Mountains above Pachuca, Hidalgo.
DISTRIBUTION: Type locality and vicinity.
ILLUSTRATION: Contr. U. S. Nat. Herb. 8: *pl. 4.*

XVI. **Obovatifoliae**. Perennials, with thick woody rootstocks. Stems decumbent at the base, with few reduced leaves. Leaves digitately 5–7-foliolate, thick, dark-green and pubescent above, white-tomentose beneath. Flowers few, cymose. Petals yellow. Stamens 20–40. Pistils numerous; styles filiform.

69. **Potentilla staminea** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 67. 1898.

Perennial, with a thick tap-root; stem stout, 4–6 dm. high, leafy, more or less villous-tomentose; basal leaves digitate with 5–7 leaflets, hairy but green above, densely white-tomentose and silky beneath; petioles densely woolly, about 3–10 cm. long; leaflets obovate, 3–10 cm. long, coarsely crenate-serrate; stem-leaves 3–5-foliolate, short-petioled or sessile; stipules ovate, toothed, 1–1.5 cm. long; cyme open, with long pedicels; hypanthium villous, in fruit 8 mm. broad; bractlets oblong or lanceolate, about 5 mm. long; sepals ovate-lanceolate, 7–8 mm. long, acuminate; corolla 2.5–3 cm. in diameter; petals yellow, broadly obcordate, nearly twice as long as the sepals; stamens about 40; styles filiform; pistils many.

TYPE LOCALITY: Southern Mexico.
DISTRIBUTION: Southern Mexico and Guatemala.

70. **Potentilla obovatifolia** Rydb. Bull. Torrey Club 28: 175. 1901.

A low perennial, with a thick tap-root; stems ascending or decumbent, 2–3-leaved, 1.5–2 dm. high, sparingly villous; basal leaves mostly digitately 7-foliolate, with petioles 3–10 cm.

long; leaflets broadly obovate, obtuse, coarsely crenate, green and sparingly hairy above, white-tomentose beneath, 0.5–3 cm. long; stem-leaves mostly 3-foliolate, small, short-petioled, with broadly lanceolate stipules; cymes open but few-flowered; hypanthium and calyx densely silky; bractlets and sepals lanceolate, subequal, about 5 mm. long; petals obcordate, yellow, about 8 mm. long, nearly twice as long as the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: [Sierra de Pachuca, Hidalgo,] Mexico.
DISTRIBUTION: Mountains of Central Mexico.

71. **Potentilla leptopetala** Lehm. Delect. Sem. Hort. Hamb. 1830: 8. 1830.

? *Potentilla hiemalis* Schlecht. Linnaea 5: 572. 1830.
Potentilla frigida Schiede & Deppe; Lehm. Stirp. Pug. 9: 59, as a synonym. 1851.

Stem ascending, 1–2-leaved, covered with long grayish spreading hairs; basal leaves digitately 5-foliolate, pilose or glabrate and green above, white-tomentose and silky with long spreading hairs beneath; leaflets ovate, strongly nerved, evenly crenate, with ovate obtusish teeth; stem-leaves 3-foliolate; stipules ovate, acuminate, entire; bractlets lanceolate, much shorter than the ovate sepals; petals obcordate, scarcely equaling the sepals, slightly emarginate; stamens about 20; pistils many.

TYPE LOCALITY: High places between Mexico and Tolucca, Mexico.
DISTRIBUTION: Central Mexico.
ILLUSTRATION: Lehm. Rev. Potent. *pl. 43*.

XVII. **Horridae.** Perennial plants with thick short caudices, covered by the thick leathery leaf-bases. Basal leaves digitately 5–7-foliolate, with linear-oblong or linear-oblanceolate, crenate, thick leaflets, which are tomentose beneath; stem-leaves much reduced. Flowers rather small in dense cymes. Petals yellow, obcordate. Styles filiform.

72. **Potentilla horrida** Rydb. Bull. Torrey Club 28: 173. 1901.

Perennial, with very thick woody root and a short caudex covered with the thick coriaceous brown remains of old leaves; stems ascending, 1.5–4 dm. high, stout, few-leaved, hirsute-villous; petioles of the basal leaves 5–10 cm. long, stout, densely hirsute-villous, broadened at the base and surrounding the stem; leaves digitate; leaflets usually 5, linear-oblong or oblong-lanceolate, obtuse, crenulate, 3–5 cm. long, 7–12 mm. wide, densely pubescent on both sides, almost velvety; pubescence at first white, later brown, consisting of tomentum and longer silky hairs; stem-leaves similar or trifoliolate, much smaller; the upper subsessile; the stipules lanceolate to linear-subulate, 1–3 cm. long, adnate to the petioles; cyme rather congested; hypanthium and calyx densely pilose; bractlets lanceolate, acute, about half as long as the ovate-lanceolate sepals, which are about 5 mm. long; petals yellow, broadly obovate, about 7 mm. long.

TYPE LOCALITY: Sierra Madre, near Colonia Garcia, Chihuahua.
DISTRIBUTION: Known only from the type locality.

73. **Potentilla durangensis** Rydberg, sp. nov.

Perennial, with a thick woody short caudex; stems erect, about 3 dm. high, pilose, with long, yellowish, reflexed or divaricate hairs and glandular-atomiferous; basal leaves numerous, digitately 5–7-foliolate; petioles 6–12 cm. long, pilose and glandular-atomiferous, their bases thick, brown and leathery; stipules adnate, free portion linear-lanceolate, attenuate, about 1 cm. long; leaflets linear-oblong or linear-oblanceolate, crenate, 2–4 cm. long, 5–10 mm. wide, rounded at the apex, acute at the base, green, pilose, and glandular-atomiferous above, more or less tomentulose beneath; lower stem-leaves similar but smaller, the upper ones subsessile and 3-foliolate; cyme rather dense; hypanthium and calyx pilose and atomiferous; bractlets linear-oblong, obtuse, 4 mm. long; sepals ovate, acute, about 6 mm. long; petals bright-yellow, broadly obovate, emarginate, about 7 mm. long; pistils many; styles filiform; stamens about 20.

Type collected at Quebrada Honda, Durango, May 20, 1906, *Edward Palmer 223* (herb. N. Y. Bot. Gard.).

XVIII. **Rubrae.** Perennial plants, with erect stems, 3 dm. high or more. Petals dark-red or dark-purple, broadly obcordate, rather large and showy. Stamens mostly 20, in 3 series on the thick and swollen, red or purple margin of the disk, the antisepalous stamens generally larger and with thicker filaments.

74. **Potentilla madrensis** Rose, Contr. U. S. Nat. Herb. 8 : 30. 1903.

Perennial, with a thick root and very short caudex; stems several, 2–4 dm. high, erect or ascending, glabrous below, somewhat villous and glandular-pubescent above; leaves mostly basal; petioles 2–7 cm. long; leaflets 3, obovate to oblong, 2–2.5 cm. long, crenate, rounded at the apex, glabrous and green on both sides; stem-leaves similar but small and short-petioled; blades about 1 cm. long; stipules lanceolate, entire, 5 mm. or less long; flowers few, on almost erect branches; bractlets linear, about 2 mm. long; sepals ovate, acute, 3–4 mm. long; petals purplish, obcordate, 5–6 mm. long.

TYPE LOCALITY: Santa Gertrudis, Tepic.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Contr. U. S. Nat. Herb. 8: *pl. 3.*

75. **Potentilla Thurberi** A. Gray, Mem. Am. Acad. II. 5 : 318. 1854.

Perennial, with a woody tap-root and short caudex; stem ascending, 3–7 dm. high, finely pubescent and sparingly villous; stipules large, 1–2 cm. long, broadly ovate, coarsely toothed; basal leaves and lower stem-leaves long-petioled, digitately 5–7-foliolate, glabrate or slightly silky, sometimes glandular-puberulent, thin, sometimes slightly paler beneath but not tomentose; leaflets obovate, 3–5-cm. long, coarsely toothed with broad teeth, almost crenate; upper stem-leaves sessile, 3–5-foliolate with oblong leaflets; cyme open and branched; flowers about 15 mm. in diameter; hypanthium puberulent, in fruit about 1 cm. in diameter; bractlets 5–6 mm. long, lanceolate, about equaling the triangular acute sepals; petals nearly orbicular, emarginate, exceeding the sepals, dark reddish-purple, 7–10 mm. long; stamens 20–30, the inner 5 with thicker filaments, borne on a ring-like thickening of the disk; pistils numerous.

TYPE LOCALITY: Near Santa Rita del Cobre, [New Mexico].
DISTRIBUTION: Mountains of New Mexico, Arizona, southern California, and northern Mexico.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 2.*

76. **Potentilla atrorubens** Rydb. Bull. Torrey Club 24 : 11. 1897.

Potentilla Thurberi Rothr. Bot. Wheeler Surv. 113. 1878. Not *P. Thurberi* A. Gray. 1854.

Perennial, with a woody tap-root and a short caudex; stem 4–7 dm. high, finely pubescent and with scattered long villous spreading or reflexed hairs; stipules ovate or lanceolate, 1–2 cm. long, often toothed; basal leaves and lower stem-leaves long-petioled, digitately 5–7-foliolate, glabrous or slightly silky above, silky and white-tomentose beneath; petioles with long spreading hairs; leaflets obovate to oblanceolate, coarsely serrate, 2–5 cm. long; stem-leaves sessile, 3–5-foliolate; cyme open and branched; flowers about 15 mm. in diameter; hypanthium silky-villous and finely pubescent, about 1 cm. in diameter; bractlets lanceolate, 6–8 mm. long, often equaling the lanceolate-triangular, more or less acuminate sepals; petals dark reddish-purple, very broadly obcordate, exceeding the sepals, 7–10 mm. long; stamens 20.

TYPE LOCALITY: [Mt. Graham,] Arizona.
DISTRIBUTION: Mountains of Arizona, New Mexico, and northern Mexico.
ILLUSTRATIONS: Bull. Torrey Club 24: *pl. 288;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 3.*

77. **Potentilla rubra** Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. 7 : 272. 1815.

Potentilla comaroides Humb. & Bonpl.; Nestler, Monog. Potent. 62. 1816.

Perennial, with a thick tap-root and short caudex; stems ascending or decumbent, 2–3 dm. high, few-flowered and few-leaved, silky-canescent; basal leaves appressed-pilose or

glabrate above, silvery-white beneath; petioles appressed-silky, 3–8 cm. long; leaflets 5–7, narrowly oblong, entire or 3–5-toothed at the apex, or sometimes with several shallow teeth above the middle, 2–4 cm. long, 8–14 mm. wide; stem-leaves ternate; stipules large, ovate, entire, 5–15 mm. long; bractlets 3 mm. long, oblong, acutish, shorter than the ovate-acute sepals; petals broadly obcordate, twice as long as the sepals, dark-purple, about 8 mm. long.

TYPE LOCALITY: Sides of the Volcano Jorullo, Mexico.
DISTRIBUTION: Mountains of central and southern Mexico.
ILLUSTRATION: Nestler, Monog. Potent. *pl. 4. f. 3.*

78. **Potentilla haematochrus** Lehm. Delect. Sem. Hort. Hamb. 1836: 7. 1836.

Potentilla haematochrous Schlecht. Linnaea **13**: 263. 1839.
Potentilla haematochroa Lehm. Stirp. Pug. **9**: 50. 1851.
Potentilla Lozani Rose & Painter, Contr. U. S. Nat. Herb. **10**: 95. 1906.

Perennial, with a thick ligneous root; stem ascending, yellowish, subvelutinous and with longer, spreading or reflexed hairs; basal leaves digitately 7-foliolate, petioled, yellowish, subvelutinous on both sides or less hairy above; petioles 7–10 cm. long, densely hirsute; leaflets obovate-oblanceolate or broadly oblong, crenate along the whole margin, and with prominent veins below, 4–7 cm. long; lower stem-leaves quinate, short-petioled, the upper ternate and sessile; stipules ovate, entire, 1–1.5 cm. long, acuminate; bractlets lanceolate, nearly equaling the ovate acuminate sepals, which are about 5 mm. long; petals obcordate, dark-red, longer than the sepals, about 8 mm. long; stamens about 20.

TYPE LOCALITY: Mountainous localities, Mexico.
DISTRIBUTION: Central and southern Mexico.
ILLUSTRATIONS: Fl. Cab. *pl. 119;* Lehm. Rev. Potent. *pl. 39*: Contr. U. S. Nat. Herb. **10**: *pl. 26.*

79. **Potentilla Ehrenbergiana** Schlecht. Linnaea **13**: 261. 1839.

Perennial, with a thick ligneous root and a short caudex; stem decumbent or ascending, canescent; basal leaves petioled, pinnate with 2–4 approximate pairs of leaflets; leaflets 2–3 cm. long, 8–10 mm. wide, green and appressed-pilose above, white-tomentose beneath, oblong, coarsely incised, almost pectinate with oblong, acute teeth or lobes; stem-leaves few, the lower with 5–7 leaflets, almost digitate, the upper ternate or simple; bractlets and sepals lanceolate, white-villous, the former a little smaller; petals obcordate, slightly longer than the sepals, about 6 mm. long, purple; stamens about 20.

TYPE LOCALITY: Huajalote, near Mineral del Monte, Mexico.
DISTRIBUTION: Hidalgo.
ILLUSTRATION: Lehm. Rev. Potent. *pl. 32.*

80. **Potentilla sanguinea** Rydberg, sp. nov.

Perennial, with a thick woody tap-root and a very short caudex; stem 5–6 dm. high, light-green, appressed-pubescent, branched above, the branches erect; basal leaves pinnately 7-foliolate with closely approximate leaflets; petioles 1–1.5 dm. long, with more spreading pubescence; leaflets 2–5 cm. long, 1–1.5 cm. wide, oblong or oblong-oblanceolate, serrate, light-green, puberulent on both sides and slightly silky on the veins beneath; lower stem-leaves similar, but more inclined to be digitate, and with shorter petioles; uppermost ones ternate or simple; stipules large, lanceolate, 1–2 cm. long; hypanthium silky and puberulent; bractlets linear-lanceolate, about 5 mm. long, acute; sepals narrowly lanceolate, acuminate, about 7 mm. long; petals rose-purple, exceeding the sepals, obcordate; stamens about 25.

Type collected about Walnut Cañon, Arizona, in 1898, *D. T. MacDougal* (herb. N. Y. Bot. Gard.).

XIX. **Aureae.** Perennial, with ascending short scaly rootstocks. Stem rather simple, ascending or erect, few-flowered, usually less than 3 dm. high. Leaves rather thin, 5–7-foliolate, usually digitate or more seldom pinnate with approximate leaflets. Pubesence silky-strigose or hirsute, not at all tomentose. Petals yellow, obcordate, exceeding the sepals. Styles filiform.

81. **Potentilla Sierrae-Blancae** Wooton & Rydb.; Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 57. 1898.

Perennial, with a branched caudex covered with the brown remains of stipules and leaf-stalks; basal leaves numerous, with slender petioles 3–5 cm. long, digitately 5-foliolate, almost perfectly glabrous and dark-green; leaflets 1–2 cm. long, almost oblong-linear, slightly tapering downward, entire except the 3-toothed apex; stipules lanceolate, ciliate; flowering stems very slender, almost leafless and usually 1-flowered, 4–6 cm. long, scarcely exceeding the leaves, finely and sparingly villous; hypanthium slightly villous, in fruit about 5 mm. in diameter; bractlets linear-oblong, obtuse, about 3 mm. long, about a third shorter than the ovate-lanceolate sepals; petals unknown; pistils rather few; styles filiform.

TYPE LOCALITY: White Mountains, New Mexico.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 18, f. 3–5.*

82. **Potentilla maculata** Pourret, Mém. Acad. Toulouse **3**: 326. 1788.

Potentilla verna L. Sp. Pl. 498, in part. 1753.
Potentilla opaca La Peyr. Hist. Abr. Pl. Pyr. 288. 1813.
Potentilla salisburgensis T. & G. Fl. N. Am. **1**: 440. 1840.
? *Potentilla ciliata* Raf. Aut. Bot. 163. 1840.
Potentilla aurea β Durand, Jour. Acad. Phila. **1856**: 191. 1856.
Potentilla maculata firma Lange, Consp. Fl. Groenl. 235. 1887. Not *P. maculata firma* Lehm 1856.
Potentilla rubens Rydb. Bull. Torrey Club **23**: 395. 1896. Not *P. rubens* Vill. 1789.

Stems from a creeping rootstock, about 2 dm. high, somewhat villous-puberulent, branched, the branches generally erect; stipules 0.5–1 cm. long, ovate, usually obtuse and subentire; basal and lower cauline leaves digitate, of 5 leaflets, the upper ternate, all glabrous with ciliate margins and veins beneath, the basal ones with somewhat hairy petioles, which are 5–7 cm. long; leaflets obovate, deeply toothed toward the ends with rounded obtuse teeth; pedicels erect; hypanthium finely villous-hirsute, in fruit 5–7 mm. in diameter; bractlets oblong, obtuse, 2–3 mm. long, much shorter than the broadly ovate, acute or obtuse sepals, which are 3–4 mm. long; petals obcordate, 5–7 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Pyrenees?
DISTRIBUTION: Arctic and subarctic Europe and Asia, the Alps, and in America from Greenland and Grinnell Land to Labrador and James Bay.
ILLUSTRATIONS: Engl. Bot. *pl. 561;* Fl. Dan. *pl. 114;* Sturm, Deuts. Fl. **17**: *pl. 5;* Jacq. Ic. Pl. Rar. **3**: *pl. 490;* Britt. & Brown, Ill. Fl. *f. 1915;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 19, f. 1–5.*

83. **Potentilla Langeana** Rydb. Bull. Torrey Club **28**: 199. 1901.

Potentilla maculata hirta Lange, Consp. Fl. Groenl. 6. 1880. Not *P. hirta* L. 1753.

Perennial, with cespitose rootstock; stems erect or ascending, 2–3 dm. high, sparingly hirsute, with erect branches; basal leaves digitately 5-foliolate; stipules large, adnate, lanceolate, 1–2 cm. long; petioles 3–8 cm. long, sparingly hirsute; leaflets cuneate-obovate, more or less densely silky-hirsute on both sides, 1–3 cm. long, coarsely toothed above the middle with oblong-ovate obtuse teeth, the cuneate base entire; lower stem-leaves similar but smaller and short-petioled; upper stem-leaves ternate or simple and subsessile; stipules ovate, acutish, about 1 cm. long; cyme 3–7-flowered; hypanthium silky-hirsute; bractlets oblong to lanceolate, acute or obtuse, about one fourth shorter than the lanceolate sepals, which are 4–5 mm. long; petals broadly obcordate, 7–8 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Amaralik Fjord, Greenland.
DISTRIBUTION: Greenland.

84. **Potentilla Vreelandii** Rydberg, sp. nov.

Perennial, with a rootstock and short caudex; stems ascending, 1.5–2 dm. high, glabrous and straw-colored below, sparingly pubescent above; basal leaves 5-foliolate, digitate,

or pinnate with closely approximate leaflets; petioles 3–5 cm. long, glabrous; leaflets cuneate or obovate-cuneate, glabrous or ciliate on the margins and veins, more or less glaucous, 1 2 cm. long, crenate with rounded-ovate teeth at the apex; stem-leaves 1–3, short-petioled, 1–3-foliolate; stipules ovate, acute, about 1 cm. long; inflorescence 1–4-flowered; hypanthium pilose, in fruit 5 mm. wide; bractlets elliptic or oblong, obtuse, about 3 mm. long; sepals ovate, acute, 4–5 mm. long; petals broadly obcordate, about 7 mm. long; stamens about 20; pistils many; styles filiform.

Type collected at Sperry Glacier, Montana, in 1901, *F. K. Vreeland 1092* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Known only from the type locality; there also collected by L. M. Umbach.

85. **Potentilla diversifolia** Lehm. Stirp. Pug. 2: 9. 1830.

Potentilla dissecta Nutt. Jour. Acad. Phila. 7: 21. 1834. Not *P. dissecta* Pursh. 1814.
Potentilla campestris Nutt.; T. & G. Fl. N. Am. 1: 439, as synonym. 1840.

Perennial, with a cespitose caudex; stem erect, few-leaved, smooth or strigose, 1–2 dm. (rarely 3 dm.) high; stipules lanceolate to ovate, acuminate; basal leaves digitate (*P. campestris* Nutt.), or often pinnate with approximate leaflets, or both in the same plant, more or less silky-strigose, especially beneath; petioles 5–15 cm. long; stem-leaves reduced, the uppermost 3-foliolate and sessile; leaflets most commonly 7, oblanceolate-cuneate or sometimes obovate, more or less toothed with triangular-lanceolate teeth; hypanthium more or less pubescent, in fruit 7–10 mm. in diameter; bractlets and sepals lanceolate, acute, the latter 3.5–5 mm. long, the former shorter; petals obcordate or obovate and emarginate, 6–7 mm. long, about one third longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: [Not given in the original, but supplied in Hooker's Flora.] Summits of Rocky Mountains [British America].

DISTRIBUTION: Mountain valleys from Saskatchewan to British Columbia, California, and Colorado.

ILLUSTRATION: Lehm. Rev. Potent. *pl. 31.*

86. **Potentilla glaucophylla** Lehm. Delect. Sem. Hort. Bot. Hamb. **1836**: 7. 1836.

Potentilla diversifolia glaucophylla Lehm. Stirp. Pug. 9: 44. 1851.
Potentilla dissecta glaucophylla S. Wats. Proc. Am. Acad. 8: 556. 1873.

Perennial, with a short woody caudex; stems 1.5–4 dm. high, glabrous below, sparingly strigose above; basal leaves digitately 5–7-foliolate; petioles glabrous, 2–10 cm. long; leaflets oblanceolate-cuneate, 1–5 cm. long, coarsely serrate, with oblong or lanceolate, acute teeth directed forward, strigose when young, soon glabrate, rather thick and more or less glaucous; lower stem-leaves similar but with shorter petioles, the upper reduced, 1–3-foliolate; stipules ovate or lanceolate, 5–15 mm. long, acute, usually entire; cyme 3–12-flowered; hypanthium rather shallow, strigose, 5–7 mm. wide in fruit; bractlets lanceolate, 3–5 mm. long, acute; sepals ovate, acuminate, 5–7 mm. long; petals obcordate, 6–10 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Plains of the first chain of the Rocky Mountains called the Black Hills [Wyoming?].

DISTRIBUTION: Mountain valleys from British Columbia to Saskatchewan, New Mexico and Utah.

ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 19, f. 6–10* (as *P. dissecta*).

87. **Potentilla Ranunculus** Lange, Fl. Dan. 17^{50}: 7. 1880.

Perennial, with a long cespitose rootstock, thickly covered by brown scale-like remnants of stipules and petioles; stems ascending, 1–3 dm. high, glabrate or slightly pubescent, 2–4-flowered and few-leaved; basal leaves digitately 5-foliolate, thin, not strongly veined, glaucous, glabrous or ciliate; petioles slender, glabrous, 5–10 cm. long; leaflets obovate, deeply 5–7-toothed with large lanceolate teeth; stem-leaves ternate; bractlets narrowly lanceolate, 4–5 mm. long; sepals broadly lanceolate, 6–7 mm. long, acute; petals slightly emarginate, slightly longer than the sepals, pale-yellow, 7–8 mm. long.

TYPE LOCALITY: Kekertak, Greenland.
DISTRIBUTION: Greenland and Labrador.
ILLUSTRATION: Fl. Dan. *pl. 2964.*

88. **Potentilla perdissecta** Rydberg, sp. nov.

Potentilla decurrens Rydb. Bull. Torrey Club **23**: 396, mainly. 1896. Not *P. dissecta decurrens* S. Wats. 1873.

Perennial, with a short cespitose caudex; stems 0.5–2 dm. high, when young slightly silky-strigose, glabrate in age; stipules ovate, acute; basal leaves palmately or rarely pinnately 5–7-foliolate, thick and somewhat coriaceous, with ribs prominent beneath; leaflets 1–3 cm. long, obovate in outline, the two lower much smaller, all deeply cleft into oblong or lanceolate acute divisions, glabrous or nearly so, shining; hypanthium silky-villous, in fruit about 5 mm. in diameter; bractlets oblong, obtuse, much shorter than the ovate-lanceolate acute sepals, which are 4–5 mm. long; petals obcordate, much longer than the sepals, 5–8 mm. long; stamens 20; pistils many; styles filiform.

Type collected on Spanish Peaks, Madison Range, Montana, July, 1896, *Flodman 572* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: High mountains from Alberta and British Columbia to Wyoming and Utah.

ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 20, f. 1–5* (as *P. decurrens*).

89. **Potentilla multisecta** (S. Wats.) Rydb. Bull. Torrey Club **23**: 397. 1896.

Potentilla diversifolia multisecta S. Wats. Bot. King's Expl. 86. 1871.
Potentilla dissecta multisecta S. Wats. Proc. Am. Acad. **8**: 557. 1873.

Perennial, with a short caudex; stem erect, slender, 1–2 dm. high, more or less silky-strigose; stipules ovate-lanceolate, acute, about 5 mm. long; basal leaves with petioles 5–10 cm. long, more or less silky, digitate or pinnate with approximate leaflets; leaflets 3–7, the lower smaller, all dissected into linear or linear-oblong divisions; stem-leaves much reduced and few; hypanthium silky, in fruit 4–5 mm. in diameter; bractlets and sepals oblong-lanceolate, acute, nearly equal, 3–4 mm. long; petals obcordate, about one half longer than the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: East Humboldt Mountains, Nevada.

DISTRIBUTION: High mountains from Montana and British Columbia to Wyoming and Nevada.

ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 20, f. 6–10.*

XX. **Subviscosae.** Perennial, with a deep thick root. Stems many, short, spreading, with divergent branches. Leaves silky or hirsute, not at all tomentose. Petals yellow, obcordate, and often inclined to be slightly unguiculate, exceeding the calyx. Bractlets and sepals incurved in fruit and enclosing the comparatively few and large achenes. Styles filiform and very slender.

90. **Potentilla Wheeleri** S. Wats. Proc. Am. Acad. **11**: 148. 1876.

Perennial; stems many from the caudex, 5–20 cm. long, spreading or decumbent, branched and many-flowered, silky-villous; stipules ovate, acute, subentire; basal leaves many, with petioles 2–6 cm. long, digitate, of 5 leaflets, equally silky on both sides; leaflets cuneate to obovate, crenate at the rounded summit, 1–2.5 cm. long; stem-leaves smaller and often ternate; hypanthium silky-villous, in fruit 5–7 mm. in diameter; bractlets oblong, obtuse, 1.5–2 mm. long; sepals ovate, rather acutish, 2–3 mm. long, inflexed in fruit; petals obcordate, a little exceeding the calyx; stamens 20; pistils about 20; styles filiform.

TYPE LOCALITY: Sierra Nevada, about the headwaters of Kern River.

DISTRIBUTION: Mountain valleys of central and southern California and Lower California.

ILLUSTRATIONS: Rothrock, Wheeler Surv. *pl. 3, f. B*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 16, f. 1–5.*

91. **Potentilla viscidula** Rydberg, sp. nov.

Potentilla Wheeleri viscidula Rydb. Bull. Torrey Club **23**: 429. 1896.

Perennial, with a tap-root and short erect caudex; stems erect or ascending, 5 cm. or less high, hirsute; basal leaves 5-foliolate, hirsute and green on both sides, often also more or less glandular-granuliferous; petioles 1–2 cm. long, hirsute; leaflets broadly obovate, 5–10 mm. long, coarsely serrate with ovate teeth; stem-leaves small and reduced, 3-foliolate or 1-foliolate; stipules lanceolate; inflorescence 1–4-flowered; pedicels, hypan-

thium, bractlets and sepals more or less glandular-granuliferous; hypanthium hirsute, 4–5 mm. wide in fruit; bractlets 2.5–3 mm. long, lanceolate; sepals lanceolate, about 3 mm. long; petals 4–5 mm. long, cuneate, emarginate; stamens about 20; pistils 15–20; styles filiform.

TYPE LOCALITY: Arizona.
DISTRIBUTION: Mountains of Arizona, southeastern California, and Chihuahua.

92. **Potentilla subviscosa** Greene, Bull. Torrey Club 8: 97. 1881.

Perennial, with a tap-root and short caudex; stems many from the caudex, prostrate or spreading, sparingly hirsute and glanduliferous especially upward; stipules ovate-lanceolate, acute, entire; basal leaves numerous, digitately (or seldom closely pinnately) 5-foliolate with the lower leaflets smallest; petioles 3–5 cm. long, sparingly hirsute, puberulent; stem-leaves reduced and ternate; leaflets 1–4 cm. long, obovate or cuneate in outline, deeply cleft into oblong or linear-oblong divisions, and the middle one often 3-divided to near the midrib, hirsute on the veins, puberulent and more or less glanduliferous; hypanthium glanduliferous and puberulent, in age generally brownish and 5–7 mm. in diameter; bractlets oblong-ovate, obtuse, 2–2.5 mm. long, shorter than the ovate, acute or obtuse sepals; petals cuneate or spatulate, about 5 mm. long and one half longer than the sepals; style short, glandular-thickened at the base; stamens 10; pistils about 15.

TYPE LOCALITY: Mogollon Mountains, New Mexico.
DISTRIBUTION: Mountains of Arizona, New Mexico, and northern Mexico.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 16, f. 6–10.*

93. **Potentilla ramulosa** Rydb. Bull. Torrey Club 23: 430. 1896.

Stems several from the thick perennial root, about 1 dm. high, scarcely exceeding the basal leaves, more or less hirsute, and branched; stipules lanceolate, the lower scarious and brown, the upper herbaceous; basal leaves in age shining, with hirsute petioles 5–8 cm. long, finely pubescent; leaflets 5–7, obovate, coarsely and usually doubly toothed with somewhat divergent teeth, prominently veined beneath, the larger 5–7 cm. long; flowers slender-pedicelled in an open cyme; hypanthium and pedicels hirsute and with numerous sessile glands; bractlets oblong, 3–4 mm. long, a little shorter than the oblong-ovate sepals, both distinctly veined, in fruit incurved and enclosing the rather few large achenes; petals obcordate, deeply emarginate and evidently contracted into a short claw, about 5 mm. long; stamens 15–20; pistils rather few; achenes striate; styles filiform.

TYPE LOCALITY: Arizona.
DISTRIBUTION: Mountains of Arizona.
ILLUSTRATIONS: Bull. Torrey Club 23: *pl. 276;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 17.*

XXI. **Concinnae.** Plants perennial, with a more or less thickened caudex; stems generally several, low, spreading, or at last prostrate. Leaves digitately 5–7-foliolate, silky above, more or less tomentose or white-silky beneath. Cymes few-flowered. Petals yellow, broadly obovate to cuneate, truncate or emarginate, a little exceeding the sepals. Styles filiform but rather short.

94. **Potentilla fastigiata** Nutt.; T. & G. Fl. N. Am. 1: 440. 1840.

Potentilla holopetala fastigiata Lehm. Stirp. Pug. 9: 46. 1851.
Potentilla gracilis fastigiata S. Wats. Proc. Am. Acad. 8: 557. 1873.
Potentilla candida Rydb. Bull. Torrey Club 24: 6, in part, *i. e.* as to specimens cited. 1897.

Perennial, with a short caudex; stem low, 1–3 dm. high, ascending, generally quite densely silky, rather simple; stipules ovate-lanceolate, often toothed, 0.5–1 cm. long; leaves on rather short petioles, digitate, with 5–7 leaflets, silky-villous with rather long hairs on both sides and slightly tomentose beneath; petioles of the basal ones 2–5 cm. long, appressed white-silky; leaflets obovate, 1–3 cm. long, coarsely crenate or somewhat incised with broad rounded-ovate or oblong-ovate teeth; cyme usually rather dense; hypanthium silky-villous, in fruit about 5–6 mm. in diameter; bractlets linear-lanceolate, shorter than the triangular-ovate acute sepals, which are about 5 mm. long; corolla 10–15 mm. in

diameter; petals broadly obcordate, a little exceeding the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Plains of the Rocky Mountains [probably Wyoming].
DISTRIBUTION: Montana and Wyoming to Nevada and Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 21, f. 1.*

95. **Potentilla Hassei** Rydberg, sp. nov.

Perennial, with a cespitose caudex; stems about 2 dm. high, densely strigose, decumbent at the base; basal leaves mostly 5-foliolate; petioles 3–5 cm. long, densely silky-strigose; leaflets obovate, 1.5–3 cm. long, crenate or cut-toothed with ovate or oblong-ovate teeth, green but densely short-pubescent with appressed hairs above, densely appressed-silky beneath; lower stem-leaves similar, the upper 3-foliolate and sessile; cyme open but with short branches; stipules ovate, about 1 cm. long, entire or somewhat toothed; hypanthium silky-hirsute, in fruit 7 mm. broad; bractlets oblong, 3 mm. long; sepals lanceolate, about 5 mm. long; petals obcordate, about equaling the sepals; stamens about 20; pistils many; styles filiform.

Type collected in Strawberry Valley, San Diego County, California, in 1892, *Dr. H. E. Hasse 5696* (herb. N. Y. Bot. Gard.).

96. **Potentilla concinnaeformis** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 54. 1898.

Perennial, with a tap-root and scaly caudex; stems about 1 dm. high, ascending, slightly silky-strigose, subscapose; lower stipules scarious and brown, those of the small stem-leaves ovate; basal leaves numerous, densely silvery-silky on both sides and slightly tomentose beneath, digitate, of about 7 leaflets; stem-leaves small, simple or ternate; leaflets 1–2 cm. long, oblong-cuneate, crenate except at the base; hypanthium silky-villous, in fruit about 5 mm. in diameter; bractlets oblong-lanceolate, about a third shorter than the broadly lanceolate sepals, which are about 4 mm. long, acute; petals yellow, obcordate, a third longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Mt. Agassiz, Arizona.
DISTRIBUTION: Arizona and southern Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 15, f. 6–10.*

97. **Potentilla concinna** Richards. in Frankl. Journey 739. 1823. — Bot. App. Frankl. Journey ed. 2. 20. 1823.

Potentilla humifusa Nutt. Gen. 1: 310. 1818. Not *P. humifusa* Willd. 1813.
Potentilla pulchella Spreng. Syst. 4: Cur. Post. 199. 1827. Not *P. pulchella* R. Br. 1819.
Tormentilla humifusa G. Don, Gen. Hist. 2: 562. 1832.
Potentilla concinna humifusa Lehm. Stirp. Pug. 9: 49. 1851.
Potentilla concinna humistrata Rydb. Contr. U. S. Nat. Herb. 3: 497. 1896.

Low and diffuse perennial, with a thick root and short woody caudex; stems many, in the typical form usually spreading, more or less tomentose; stipules ovate-lanceolate, acuminate; leaves densely white-tomentose beneath, silky and slightly tomentose above when young, digitate (sometimes approximately pinnate), of 5 leaflets; leaflets obovate or cuneate, more or less deeply toothed with ovate teeth, 1–3 cm. long; hypanthium silky-villous and tomentose, in fruit 6–8 mm. in diameter; bractlets oblong, obtuse or mucronate, 3–4 mm. long; sepals ovate, acute, 4–5 mm. long; petals obcordate, a little exceeding the sepals, about 6 mm. long; stamens about 20; pistils many; styles short, filiform.

TYPE LOCALITY: Wooded region of British America.
DISTRIBUTION: Dry hills and mountains from Colorado to Saskatchewan and Alberta.
ILLUSTRATIONS: Hook. Fl. Bor. Am. 1: *pl. 67;* Lehm. Monog. Potent. Suppl. *pl. 7, f. 2;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 14, f. 1–5.*

98. **Potentilla oblanceolata** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 53. 1898.

Perennial; stems several from the caudex, decumbent or spreading, about 1 dm. long, with few leaves, silky-villous; basal leaves numerous, digitately 5-foliolate, silky and green

above, densely white-tomentose beneath; leaflets narrowly oblanceolate, 3–5 cm. long, serrate with small forwardly directed teeth; stem-leaves trifoliolate or simple; stipules brown and decurrent, the free portion long, linear-lanceolate; hypanthium silky and white-tomentose; bractlets narrowly lanceolate, nearly equaling the similar sepals; petals yellow, broadly obcordate, exceeding the sepals by about one third; stamens 20; pistils many; styles short, filiform.

TYPE LOCALITY: Southwestern Chihuahua.
DISTRIBUTION: New Mexico and Chihuahua.

99. **Potentilla bicrenata** Rydb. Bull. Torrey Club **23**: 431. 1896.

Perennial, with a tap-root and short caudex, simple or cespitose; stem erect to spreading, 5–7 cm. high, about equaling the leaves, 1–3-flowered, nearly leafless; basal leaves with petioles 3–6 cm. long, digitately 5-foliolate, silky and greenish above, white-tomentose beneath; leaflets 0.5–3 cm. long, oblong-cuneate, the margins entire, except at the very apex, where there are 2 (seldom 4) notches making the leaflets 3- (seldom 5-) toothed at the apex, the middle tooth generally the smallest; flowers about 1 cm. in diameter; hypanthium silky; bractlets lanceolate, about 3 mm. long; sepals ovate or lance-ovate, about 4 mm. long; petals obovate, truncate or emarginate, 5–6 mm. long; stamens about 20; pistils many; styles filiform, short.

TYPE LOCALITY: New Mexico.
DISTRIBUTION: Dry hills from New Mexico to Wyoming.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 15, f. 1–5.*

100. **Potentilla divisa** Rydberg, sp. nov.

Potentilla nivea dissecta S. Wats. Proc. Am. Acad. **8**: 559, at least in part. 1873. Not *P. dissecta* Pursh, 1814.
Potentilla concinna divisa Rydberg, Bull. Torrey Club **23**: 431. 1896.

Perennial, with a thick root and short cespitose woody caudex; stems spreading or diffuse, 5–10 cm. long, more or less pubescent with long, white, usually appressed or ascending hairs; basal leaves 5-foliolate, digitate, or pinnate with approximate leaflets; petioles 1–3 cm. long, white-pubescent; leaflets 1–2 cm. long, obovate or oblanceolate in outline, deeply cleft with oblong or lanceolate divisions, pubescent above with long white hairs and sometimes slightly tomentulose, densely white-tomentose beneath; stem-leaves usually ternate; stipules lanceolate, 5–10 mm. long; hypanthium villous, in fruit 5–6 mm. wide; bractlets lanceolate, acute or obtusish, 3–4 mm. long; petals broadly cuneate, emarginate, about 5 mm. long; sepals ovate, about 4 mm. long; stamens about 20; pistils many; styles filiform, short.

TYPE LOCALITY: Rocky Mountains of British America.
DISTRIBUTION: Dry hills from the Black Hills of South Dakota to Saskatchewan, Alberta, and Colorado.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 14, f. 6.*

101. **Potentilla quinquefolia** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 76. 1898.

Potentilla nivea pentaphylla Lehm. Delect. Sem. Hort. Hamb. **1850**: 12. 1850. Not *P. pentaphylla* Richt. 1815.
Potentilla nivea quinquefolia Rydb. Bull. Torrey Club **23**: 302. 1896.
Potentilla subquinata Rydb. Bull. Torrey Club **28**: 181, in part. 1901.

Perennial, with a rather short and thick rootstock or caudex; stems generally several, ascending, 1.5–2 dm. high, rather loosely silky-villous, more or less tinged with brown; basal leaves rather many, with silky-villous petioles 3–5 cm. long, 5- (seldom 3-) foliolate, usually with the terminal leaflet short-petiolulate, silky-villous above, white-tomentose beneath; stem-leaves trifoliolate; leaflets broadly obovate, cleft about halfway to the midrib into oblong segments, 1.5–3 cm. long; stipules large, ovate, 0.5–1 cm. long; hypanthium loosely silky; bractlets linear-lanceolate, somewhat shorter than the lanceolate sepals, about 4 mm. long; petals obovate, emarginate, a little exceeding the sepals; stamens about 20; pistils many; styles short, filiform or slightly thickened at the base.

TYPE LOCALITY: [British] North America.
DISTRIBUTION: Mountains and hills from Saskatchewan to British Columbia, Colorado, and Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 30.*

102. **Potentilla modesta** Rydberg, sp. nov.

Perennial, with a short rootstock; stems ascending, about 1 dm. high, several-flowered; basal leaves digitately 5-foliolate; petioles 1–4 cm. long, densely villous; leaflets broadly obovate, 1–1.5 cm. long, silky but green above, white-tomentose beneath, deeply cleft into oblong or lanceolate divisions; lower stem-leaves similar, the upper subsessile and 1–3-foliolate; inflorescence several-flowered, rather dense, the pedicels short; stipules lanceolate, about 0.5 cm. long; hypanthium hirsute-villous, somewhat glandular-puberulent in fruit, 4–5 mm. wide; bractlets linear, about 2 mm. long; sepals lance-ovate, acute, 3 mm. long; petals 3–4 mm. long, obcordate; stamens 20; pistils many; styles filiform.

Type collected on Mount Barette, near Marysvale, Utah, in 1905, *Rydberg & Carlton 7261* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: High mountains of Utah.

XXII. **Niveae.** Plants mostly low and tufted. Rootstock often thick, scaly. Leaves digitately 3-foliolate, more or less tomentose beneath. Petals obcordate, yellow. Styles short, often inclined to be thickened and glandular at the base. The relationship of the group is with CONCINNAE, MULTIFIDAE, and FRIGIDAE.

103. **Potentilla Pringlei** S. Wats. Proc. Am. Acad. **23**: 272. 1888.

Stem decumbent, 3 dm. long or more, finely tomentose, as well as the paniculate inflorescence; leaves mostly radical, ternately digitate; leaflets lanceolate, 3–5 cm. long and 4 mm. broad, acutely toothed, nearly glabrous above, densely white-tomentose beneath; flowers on very slender pedicels, rather large, yellow; calyx-lobes lanceolate; bractlets linear; stamens 20; styles filiform, nearly terminal.

TYPE LOCALITY: Pine plains near Sierra Madre, Chihuahua, Mexico.
DISTRIBUTION: Known only from the type locality.

104. **Potentilla prostrata** Rottb. Skr. Kjöb. Selsk. Laerd. & Vidensk. **10**: 453. 1770.

Potentilla nivea prostrata Lehm. Monog. Potent. 184. 1820.

Perennial; stem ascending or prostrate, about 2 dm. long, more or less compressed, sparingly villous; petioles of the basal leaves 4–5 cm. long, those of the lower stem-leaves 2 cm. long, villous; stipules lanceolate, about 2 cm. long; leaflets 3, obovate-oblanceolate, 2.5–3.5 cm. long, deeply cleft more than halfway to the midrib with oblong-lanceolate revolute-margined divisions, glabrous and strongly veined above, villous-tomentose but not very white beneath; upper stem-leaves unifoliolate, about 3.5 cm. long, lanceolate, few-toothed; cyme conglomerate; hypanthium villous; sepals lanceolate, 7–8 mm. long, acute, a little longer than the similar bractlets; petals obcordate, about 7 mm. long.

TYPE LOCALITY: Greenland.
DISTRIBUTION: Known only from the type locality.

105. **Potentilla Hookeriana** Lehm. Delect. Sem. Hort. Hamb. **1849**: 10. 1849.

Perennial; stems several from the caudex, 1–2 dm. high, white-tomentose and silky-villous, ascending, few-leaved; stipules lanceolate, acute; leaves with petioles 1–2 cm. long, ternate or occasionally with a pair of small extra leaflets, white on both sides, silky-villous above, densely tomentose beneath; leaflets obovate in outline, 1–2 cm. long, deeply cleft to near the midrib into oblong lobes; middle leaflet short-petioled; flowers in small dense cymes, about 8–10 mm. in diameter; hypanthium densely silky-villous, in fruit 5 mm. in diameter; bractlets linear, about equaling the lanceolate, acute sepals; petals obcordate, generally a little exceeding the sepals; stamens 20; pistils numerous; styles short, a little thickened and glandular at the base.

TYPE LOCALITY: North America.
DISTRIBUTION: Saskatchewan to Alberta and Montana.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 55*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 33, f. 1–5*.

106. **Potentilla Pedersenii** Rydberg, sp. nov.

Potentilla subquinata Pedersenii Rydb. Bull. Torrey Club 28: 182. 1901.

Caudex with elongate branches covered by the remains of old leaves; stems low, less than 1 dm. high, 1–3-flowered, covered, as well as the petioles, with long white hairs; basal leaves 3–5-foliolate; leaflets small, 1–1.5 cm. long, broadly obovate, white-silky on both sides and tomentose beneath, in age more glabrate above; stem-leaves small, 3-foliolate; hypanthium villous, 5 mm. in diameter in fruit; bractlets very narrow, linear or linear-lanceolate; sepals lanceolate, about 5 mm. long; petals obcordate, 5–6 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Vaigat Assuk, Disco, Greenland.
DISTRIBUTION: Island of Disco.

107. **Potentilla nipharga** Rydberg, sp. nov.

Potentilla nivea dissecta S. Wats. Proc. Am. Acad. 8: 559, in part. 1873.
Potentilla nivea subquinata Lange, Consp. Fl. Groenl. 9, in part. 1880.
Potentilla nivea arenosa Lange, Consp. Fl. Groenl. 236. 1887. Not *P. nivea arenosa* Turcz. 1843.
Potentilla nivea pinnatifida Lange, Consp. Fl. Groenl. 236. 1887. Not *P. nivea pinnatifida* Lehm. 1851.
Potentilla nivea altaica Rydb. Mem. Dep. Bot. Columbia Univ. 2: 86. 1898. Not *P. altaica* Bunge, 1830.
Potentilla subquinata Rydb. Bull. Torrey Club 28: 181, in part. 1901.

Perennial, with a short caudex; stem 1–2 dm. high, sparingly villous; leaves ternate or the uppermost unifoliolate, some of the basal ones rarely 5-foliolate; petioles of the basal leaves 1–6 cm. long, villous; leaflets obovate to oblanceolate, 1–2.5 cm. long, sparingly hairy and glabrous above, white-tomentose beneath, the terminal one sometimes petiolulate, deeply cleft into lanceolate or lance-oblong divisions; stem-leaves short-petioled; stipules lanceolate; inflorescence open; hypanthium villous, in fruit 4–6 mm. wide; bractlets narrowly linear, 4–6 mm. long; sepals linear-lanceolate, of about the same length; petals obcordate, 5–7 mm. long; stamens about 20; pistils many; styles filiform.

Type collected at Fort Good Hope on the Mackenzie River, *I. S. Onion* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Arctic America from the Mackenzie to Greenland, and in the Rockies south to Utah.

108. **Potentilla nivea** L. Sp. Pl. 499. 1753.

Fragaria nivea Crantz, Inst. 2: 179. 1766.
Potentilla nivea macrophylla Seringe, in DC. Prodr. 2: 571. 1825.
Potentilla nivea pallidior Sw. Summa Veg. Scand. 19. 1814.
Potentilla nivea subviridis Ledeb. Fl. Ross. 2: 57. 1844.
Potentilla nivea subquinata Lange, Consp. Fl. Groenl. 9, in part. 1880.

Cespitose perennial, with the caudex covered with the brown scarious stipules and old leaves; stems several, 1–2 dm. high, more or less tomentose or villous, few-leaved; basal leaves on petioles 2–5 cm. long, ternate, glabrate or slightly villous above, densely white-tomentose beneath (less densely so in var. *pallidior*); leaflets oblong-cuneate or obovate, 2–3 cm. long or (in var. *macrophylla*) broadly obovate and 3–6 cm. long, generally coarsely crenate; stem-leaves similar but smaller; cyme 2–6-flowered; flowers 12–15 mm. in diameter; hypanthium 6–8 mm. wide in fruit, white-villous or tomentose; bractlets linear to lanceolate, slightly shorter than the lanceolate acute sepals, which are 5–6 mm. long; petals obcordate, exceeding the sepals, 6–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Lapland [Sweden].
DISTRIBUTION: Arctic and alpine regions of the northern hemisphere, in America extending from Alaska to Greenland and Quebec, and south in the Rockies to Colorado.
ILLUSTRATIONS: Fl. Dan. *pl. 1035*; Sturm, Deuts. Fl. 92: *pl. 6*; Gmel. Fl. Sib. 3: *pl. 36, f. 1*, Britt. & Brown, Ill. Fl. *f. 1918*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 34, f. 6–10*.—(var. *macrophylla*) Skr. Kjøb. Selsk. Laerd. & Vidensk. 10: *pl. 7*; Bot. Mag. *pl. 2982*; Bot. Cab. *pl. 460*.

109. **Potentilla uniflora** Ledeb. Mém. Acad. St. Petersb. 5: 543. 1812.

Potentilla macrantha uniflora G. Don, Gen. Hist. 2: 550. 1832.
Potentilla nivea γ T. & G. Fl. N. Am. 1: 441, in part. 1840.
Potentilla villosa uniflora Ledeb. Fl. Ross. 2: 58. 1844.
Potentilla nivea Vahliana Seem. Bot. Voy. Herald 29, in part. 1852.
Potentilla nivea uniflora Rydb. Bull. Torrey Club 23: 303. 1896.

Densely cespitose perennial, the caudex covered with the dark-brown scarious stipules and remains of old leaves; stems about 5 cm. high, more slender than in *P. Vahliana*,

slightly villous or tomentose, nearly scapose or with few very small leaves, 1–2-flowered; leaves crowded, ternate, silky or glabrate above, densely white-tomentose beneath; leaflets 1–1.5 cm. long, broadly cuneate or rhombic-obovate, deeply cut from the apex into coarse oblong-lanceolate teeth; flowers 15–20 mm. in diameter; hypanthium white or grayish, villous or somewhat tomentose, about 8 mm. in diameter; bractlets lanceolate, nearly equaling the ovate-lanceolate acute sepals, 4–5 mm. long; petals yellow, obcordate, 6–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Davuria [southeastern Siberia].
DISTRIBUTION: Arctic-alpine regions: Eastern Asia, and in America from Alaska to Oregon, Colorado, and on the arctic coast to Coppermine River; perhaps also in Greenland.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 18;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 35, f. 3–7.*

110. **Potentilla Vahliana** Lehm. Monog. Potent. 172. 1820.

Potentilla hirsuta Vahl.; Hornem. Dansk Oecon. Pl. ed. 2. 500. 1806. Not *P. hirsuta* Michx. 1803.
Potentilla Jamesoniana Greville, Mem. Wern. Soc. 3: 417. 1821.
Potentilla nivea β R. Br. Chlor. Melv. 19. 1823.
Potentilla nivea γ T. & G. Fl. N. Am. 1: 441, in part. 1840.
Potentilla nivea Vahliana Seem. Bot. Voy. Herald 29. 1852.
Potentilla nivea hirsuta Durand, Proc. Acad. Phila. 1863: 94. 1863.

Densely cespitose, the stout, woody, much-branched caudex covered with the brown scarious stipules and remains of old leaves; flowering stems nearly leafless, 1–2-flowered, about 5 cm. high, densely covered with yellowish hairs; leaves crowded, short-petioled, ternate, silky above, slightly tomentose and rather densely yellowish-villous beneath; leaflets generally less than 1 cm. long, cuneate and coarsely dentate at the apex; flowers about 15–20 mm. in diameter; hypanthium yellowish silky-villous, about 1 cm. in fruit; bractlets and sepals broadly ovate, oval, or elliptic, often obtuse, subequal, 4–5 mm. long; petals nearly orange, broadly obcordate, overlapping each other and often broader than long, nearly twice as long as the sepals; stamens 20; pistils numerous; styles filiform.

TYPE LOCALITY: Greenland.
DISTRIBUTION: Greenland, Hudson Bay region, and arctic coast of America; also Herald Island.
ILLUSTRATIONS: Fl. Dan. *pl. 1390;* Mem. Wern. Soc. 3: *pl. 20;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 35, f. 8–12.*

111. **Potentilla villosa** Pall.; Pursh, Fl. Am. Sept. 353. 1814.

Potentilla lucida Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. 7: 296. 1815.
Potentilla fragiformis villosa Regel & Tiling, Fl. Ajan. 85. 1858.
Potentilla villosa aurea Lehm. Stirp. Pug. 9: 67. 1851. Not *P. aurea* L. 1753.
Potentilla villosa chrysocoma Rydb. Mem. Dep. Bot. Columbia Univ. 2: 88. 1898.

Perennial, with a short caudex, somewhat tufted; stems several from the stout caudex, few-flowered, 1–3 dm. high, villous with spreading white hairs or pubescence of the whole plant yellowish (var. *aurea* or *chrysocoma*); stipules ovate to elliptic, 10–15mm. long, the lower scarious and brown, the upper silky and white-tomentose; basal leaves stout-petioled, ternate, densely silky above, densely white-tomentose and with prominent veins beneath; leaflets 2–4 cm. long, broadly cuneate, obovate, or nearly orbicular, the lateral ones much oblique, coarsely toothed; stem-leaves few, smaller and subsessile; flowers 2–3 cm. in diameter; hypanthium densely villous, in fruit 15–20 mm. in diameter; bractlets elliptic to broadly ovate or oval, equaling or exceeding the triangular-ovate sepals, 5–8 mm. long; petals yellow, broadly obcordate, 6–12 mm. long; stamens about 20; pistils numerous; styles filiform.

TYPE LOCALITY: Northwest coast.
DISTRIBUTION: Altai, eastern Siberia; and in North America from Alaska to the mountains of Washington.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 16;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 34, f. 1–5.*

XXIII. **Frigidae.** Plants low with a scaly rootstock, often tufted. Leaves digitately 3-foliolate, not at all tomentose, in ours coarsely toothed. Petals yellow, obcordate. Styles filiform, but sometimes short. The group is very nearly related to AUREAE and NIVEAE, differing from the former only in the number of the leaflets, and from the latter by the lack of tomentum.

112. **Potentilla flabellifolia** Hook.; T. & G. Fl. N. Am. **1**: 442. 1840.

Potentilla gelida S. Wats. Proc. Am. Acad. 8: 559. 1873. Not *P. gelida* Meyer. 1831.

Perennial; stems from a scaly rootstock, minutely puberulent, 2–3 dm. high, few-leaved; stipules usually very broad, elliptic and obtuse, thin, 0.5–1 cm. long; leaves ternate, very thin, short-pubescent or glabrate; leaflets cuneate-flabelliform, rarely broadly obovate, sometimes petiolulate, deeply incised-serrate with obtuse teeth, entire toward the base and the lateral ones somewhat oblique; flowers 1.5–2 cm. in diameter; hypanthium minutely puberulent, or glabrous, in fruit nearly 1 cm. in diameter; bractlets oval, obtuse or acutish, about equaling the ovate acute sepals, which are 5–6 mm. long; petals obovate, cuneate, deeply emarginate, 8–10 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Summit of Mount Ranier, Washington.
DISTRIBUTION: Mountains from British Columbia to central California.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 51;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 31, f. 6–10.*

113. **Potentilla Friesiana** Lange, Fl. Dan. **17**[50]: 8. 1880.

Potentilla maculata Fries; Lange, Fl. Dan. **17**[50]: 8, as a synonym. 1880.

Perennial; stems several from a thick rootstock, 1 dm. high or more, ascending or erect, pilose with long hairs; basal leaves numerous, short-petioled, glutinous, long-pilose, especially beneath; stem-leaves 1 or 2; leaflets broadly obovate, crenately 3- or 4-toothed at the apex; stipules ovate, entire, the lower acute, the upper obtuse; cyme several-flowered, crisp-lanate and glandular; bractlets elliptic, obtuse, half as long as the ovate acute sepals; petals twice as long as the sepals, broadly emarginate;

TYPE LOCALITY: Kuanersuit, Disco, Greenland.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Fl. Dan. *pl. 2965.*

114. **Potentilla fragiformis** Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. **7**: 294. 1815.

Potentilla grandiflora fragiformis Seringe, in DC. Prodr. **2**: 572. 1825.

Perennial, somewhat tufted; stems several from the caudex, more or less villous, ascending or erect, 1–2 dm. high, few-leaved and few-flowered, with rather long erect branches; stipules ovate, the lower scarious, brown and acute, the upper herbaceous and obtuse or acute; leaves ternate with sessile leaflets, more or less villous, the odd leaflets larger, ovate with cuneate base, the lateral ones obliquely elliptic or obovate, all with obtuse and more rounded teeth than in *P. emarginata;* hypanthium villous, in fruit 10–15 mm. in diameter; bractlets usually broadly elliptic and obtuse, equaling or often exceeding the ovate rather acute sepals, which are 6–7 mm. long; petals obcordate or broadly cuneate and deeply emarginate, about 8 mm. long; stamens about 20; pistils numerous.

TYPE LOCALITY: Aleutian Islands.
DISTRIBUTION: Siberia, and the Aleutian and Behring Sea Islands.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 15;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 31, f. 1–5.*

115. **Potentilla emarginata** Pursh, Fl. Am. Sept. 353. 1814.

Potentilla nana Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. **7**: 296. 1815.
Potentilla groenlandica R. Br. in Ross, Voy. 142. 1819.
? *Potentilla frigida* Grev. Mem. Wern. Soc. **3**: 430. 1821.
Potentilla verna Hook. in Scoresby, Greenl. 431. 1823.
Potentilla nivea β R. Br. Chlor. Melv. 19. 1823.
Potentilla Fragaria emarginata Seringe, in DC. Prodr. **2**: 586. 1825.
Potentilla nivea arctica Schlecht. & Cham. Linnaea **2**: 21. 1827.
Potentilla nivea concolor G. Don, Gen. Hist. **2**: 550. 1832.
Potentilla fragiformis parviflora Traut.; Nathorst, Oefv. Sv. Vet.-Akad. Förh. 1884: 23. 1884.

Cespitose perennial, with a short caudex; stems 2–10 cm. high, generally 1–2-flowered, pilose or softly villous-hirsute; stipules ovate or lanceolate, scarious and brown; leaves ternate, pilose on both sides, short-petioled; leaflets 0.5–1.5 cm. long, broadly obovate, with a cuneate base, and with broad teeth; hypanthium pilose-hirsute, in fruit 5–10 mm. broad; bractlets oblong to elliptic, acute or obtuse, 4–6 mm. long, about equaling the ovate

acute sepals; petals broadly obcordate, a little exceeding the sepals, 5–8 mm. long; stamens short, about 20; pistils numerous; styles filiform, rather short.

TYPE LOCALITY: Labrador.
DISTRIBUTION: Arctic America from Labrador and Greenland to Alaska, and alpine regions of the Canadian Rocky Mountains; also in Siberia and Spitzbergen.
ILLUSTRATIONS: Fl. Dan. *pl. 2291;* Britt. & Brown, Ill. Fl. *f. 1919, 1920;* Lehm. Monog. Potent. *pl. 17;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 32, f. 1–5, f. 11–15.*

116. **Potentilla Robbinsiana** Oakes; T. & G. Fl. N. Am. **1**: 441, as synonym. 1838.—Rydb. Bull. Torrey Club **23**: 304. 1896.

Potentilla minima β T. & G. Fl. N. Am. 1: 441. 1840.
Potentilla frigida A. Gray, Man. ed. 2. 118. 1856. Not *P. frigida* Vill. 1789.
Potentilla minima Robbinsiana Lehm. Rev. Potent. 159. 1856.

Cespitose perennial, with a short caudex, almost pulvinate; stems 2–3 cm. high, softly long-pilose, one-flowered, and with 1 or 2 diminutive leaves; stipules ovate, obtuse, scarious and brown; leaves ternate, short-petioled, villous-pilose, especially beneath; leaflets 0.5–1 cm. long, obovate, cuneate at the base, deeply incised-serrate with generally obtuse teeth; hypanthium villous, in fruit 5–7 mm. in diameter; bractlets and sepals oblong, obtuse, subequal, 2–2.5 mm. long; petals obovate, slightly exceeding the sepals, obcordate at the apex; stamens about 20.

TYPE LOCALITY: White Mountains, New Hampshire.
DISTRIBUTION: White Mountains of New Hampshire.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1921;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 32, f. 6–10.*

XXIV. **Biflorae.** Plant cespitose, the stems subscapose, 1–3-flowered. Leaves ternate, with the leaflets divided to near the base into 2 or 3 linear, entire, somewhat revolute segments, not tomentose. Petals broadly elliptic, yellow, slightly emarginate. Styles long and filiform. Receptacle beset with long hairs.

117. **Potentilla biflora** Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. **7**: 297. 1815.

Potentilla bifolia Lehm. Stirp. Pug. 9: 32. 1851.

Cespitose or pulvinate perennial, with short and thick caudex; flowering branches scapelike, 1- or 2- (seldom few-) flowered, erect, less than 1 dm. high, sparingly hirsute-villous; stipules lanceolate, acuminate, brown; leaves basal, ternate, with the middle leaflet deeply 3-divided, the lateral ones 2-divided into linear segments 5–10 mm. long, with more or less revolute margins, sparingly villous-hirsute, in age nearly glabrous above, and with a strong midrib beneath; flowers less than 1 cm. in diameter; hypanthium sparingly hairy, in fruit about 7 mm. in diameter; bractlets oblong, obtuse, about equaling the ovate-lanceolate acute sepals, 3.5–4 mm. long; petals obovate, slightly emarginate, longer than the sepals, yellow with an orange spot, 4–5 mm. long; stamens about 20; pistils numerous; styles filiform, long.

TYPE LOCALITY: Eastern Siberia.
DISTRIBUTION: Eastern Siberia, Alaska, and the arctic coast to the Mackenzie River.
ILLUSTRATIONS: Lehm. Monog. Potent. *pl. 20;* Lehm. Rev. Potent. *pl. 62, f. 1;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 33, f. 6–9.*

XXV. **Saxosae.** Small glandular-pubescent perennials with thick woody roots and caudices. Leaflets pinnate, with few, deeply cut leaflets. Flowers small and few, in open cymes. Sepals broad, acuminate. Petals narrow, yellow or cream-colored, acutish or acuminate. Styles filiform, inserted just below the incurved apex of the ovary.

118. **Potentilla saxosa** Lemmon; Greene, Pittonia **1**: 171. 1888.

Horkelia saxosa Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 155. 1898.

Perennial, slender, about 3 dm. high, pubescent and viscid-glandular; leaves pinnate; leaflets 11–15, reniform-flabelliform, 1–1.5 cm. long, cleft to the middle into oblong acutish segments; cyme open, few-flowered; hypanthium saucer-shaped; sepals ovate,

acuminate, 3 mm. long; bractlets ovate to elliptic, 2 mm. long; petals yellow, spatulate-oblanceolate, acutish, 2 mm. long; stamens 20–30; filaments filiform; anthers didymous; pistils 8–10; styles filiform, attached below the apex.

TYPE LOCALITY: San Rafael Mountains, Lower California.
DISTRIBUTION: Lower California and southern California.

119. **Potentilla rosulata** Rydb. Bull. Torrey Club **26**: 542. 1899.

Glandular and viscid-pubescent perennial; caudex thick and lignose, topped with dense rosettes of leaves and short stems; the latter, at least in the type specimens, less than 1 dm. high; basal leaves 4–5 cm. long, long-petioled, pinnately 5-foliolate; stem-leaves ternate, short-petioled, or the upper subsessile; lower stipules lanceolate and thin; the upper ovate and rather thick; leaflets thick, densely viscid and glandular-pubescent, broadly obovate, or the terminal orbicular, deeply crenate or somewhat cleft, 7–10 mm. long; pedicels 5–15 mm. long; hypanthium about 5 mm. in diameter, densely viscid-pubescent; bractlets ovate, about half as long as the broadly triangular-ovate, acute or acuminate sepals; petals small, oblong, whitish or light-yellow, about as long as the bractlets; stamens between 30 and 40; anthers distinctly didymous; pistils 20–40; styles filiform, attached near the apex of the ovary.

TYPE LOCALITY: Twenty-nine Palms, Colorado Desert, California.
DISTRIBUTION: Known only from the type locality.

120. **Potentilla acuminata** Hall, Univ. Calif. Publ. Bot. **1**: 86. 1902.

Perennial, with a stout woody root and caudex; stems several, glandular-pubescent, 1–1.5 dm. high; basal leaves pinnate with 3–5 leaflets; stem-leaves 1–3-foliolate; stipules lanceolate, acute, entire; leaflets orbicular or cuneate-obovate, 5–15 mm. long, deeply serrate with lance-elliptic teeth, thin, glandular-puberulent; inflorescence open, few-flowered; hypanthium hemispheric, 2 mm. wide; bractlets linear-lanceolate to oblong, acute, 1.5 mm. long; sepals broadly ovate-acuminate, 3 mm. long; petals yellow, lanceolate, acuminate or acute, nearly 3 mm. long; stamens 20–30; pistils 10 or more; styles filiform, inserted below the incurved tip of the ovary.

TYPE LOCALITY: Cracks of rocks along Chino Creek, San Jacinto Mountains, California.
DISTRIBUTION: San Jacinto and White Mountains, California.

XXVI. **Brevifoliae.** Low alpine plants with a perennial short rootstock and few-leaved erect or ascending stems, seldom much over 1 dm. high. Leaflets pinnate, with 3–5 leaflets, nearly glabrous. Petals obcordate, yellow, exceeding the sepals. Apex of the achene slightly incurved, with the long slender filiform style inserted below the tip.

121. **Potentilla brevifolia** Nutt.; T. & G. Fl. N. Am. **1**: 442. 1840.

Plant very low, cespitose, perennial, with a short caudex; stems less than 1 cm. high, slender, 1- or 2-leaved, glandular-puberulent; stipules about 0.5 cm. long, broadly ovate, entire, the lower scarious; basal leaves many, small, pinnate with 1–2 pairs of leaflets, puberulent; leaflets suborbicular with cuneate base, 2–3-cleft and crenate, 0.5–1 cm. long; stem-leaves much reduced, and subsessile; hypanthium glandular-puberulent, sometimes with a few long hairs, in fruit less than 5 mm. broad; flowers about 8 mm. in diameter; bractlets oblong, obtuse or acutish, a little shorter than the sepals, which are broadly ovate and acute or slightly mucronate, 4 mm. long; petals a little longer than the sepals, yellow, obovate, and often a little notched; stamens about 20; pistils many.

TYPE LOCALITY: Near the summit of mountains, within the perpetual snow line, near Goodier River of the Oregon.
DISTRIBUTION: High mountains from Oregon to western Wyoming.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 44, f. 1–5.*

122. **Potentilla Grayi** S. Wats. Proc. Am. Acad. **8**: 560. 1873.

Potentilla Clarkiana Kellogg, Proc. Calif. Acad. **7**: 94. 1876.

Somewhat tufted, perennial, with short caudex; stems subscapose, 5–15 cm. high, minutely strigose or glabrous, few-flowered; stipules ovate, acute, entire or often few-toothed;

leaves basal, pinnately 3-foliolate, with the middle leaflet long-petiolulate, sparingly hirsute or glabrate, shining; leaflets 1–2 cm. long, very broadly obovate or sometimes nearly orbicular in outline, entire at the base, upwards coarsely 5–7-toothed, with the terminal tooth generally smaller; flowers on slender pedicels, about 1 cm. in diameter; hypanthium strigose in fruit, 7–8 mm. in diameter; bractlets ovate or oval, generally obtuse and only half as long as the ovate, usually acute sepals, which are about 5 mm. long; petals orbicular or broadly ovate, slightly retuse, longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Yosemite Valley.
DISTRIBUTION: Mountains of California.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 44, f. 6–10.*

XXVIII. **Rubricaules** Plants more or less cespitose, with ascending or decumbent (rarely erect), short, few-leaved or subscapose stems. Leaves pinnate, with 2 (seldom 3) pairs of approximate leaflets, more or less tomentose beneath. Petals yellow, obcordate. Styles long and slender, filiform.

123. **Potentilla tenerrima** Rydb. Bull. Torrey Club **23**: 398. 1896.

Tufted from a perennial root; stems many, very slender, generally tinged with red, 1–1.5 dm. high, sparingly strigose; stipules linear-lanceolate, acuminate, about 1 cm. long, the lower scarious and brown; leaves pinnate with 2 pairs of leaflets and the terminal leaflet sessile, finely silky and a little grayish-tomentulose beneath; leaflets obovate or oblanceolate in outline, divided to near the midrib into linear acute segments; flowers on slender pedicels, nearly 1 cm. in diameter; hypanthium silky-strigose, in fruit 5 mm. in diameter; bractlets linear, acute, very little shorter than the narrowly lanceolate sepals, which are about 4 mm. long; petals obovate, slightly retuse, a little exceeding the sepals; stamens about 20; style filiform, nearly terminal; achenes smooth.

TYPE LOCALITY: Bergen's Park, Colorado.
DISTRIBUTION: Mountains of Colorado.
ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 275, f. 1–5;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 42, f. 1–5.*

124. **Potentilla rubricaulis** Lehm. Stirp. Pug. **2**: 11. 1830.

Perennial, with a short caudex; stems several, ascending, about 2 dm. high, often tinged with red, pubescent with spreading hairs; basal leaves pinnate with 5 approximate leaflets, rarely trifoliolate; petioles 3–7 cm. long, pubescent with spreading hairs; leaflets 1–3 cm. long, obovate or oblanceolate, glabrate above, white-tomentose beneath, pinnately cleft into lanceolate acute teeth; stem-leaves mostly ternate; stipules ovate-lanceolate, acute, entire; cyme 5–9-flowered; bractlets lance-oblong, acute; sepals ovate-lanceolate; petals obcordate, a little longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: [Not given in the original publication, but supplied in Hooker's Flora.] Near Bear Lake, Mackenzie.
DISTRIBUTION: Arctic America from the Mackenzie to Ellesmere Land.
ILLUSTRATION: Lehm. Rev. Potent. *pl. 30.*

125. **Potentilla rubripes** Rydb. Bull. Torrey Club **33**: 143. 1906.

Potentilla rubricaulis Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 101. 1898. Not *P. rubricaulis* Lehm. 1830.

More or less cespitose perennial; stems ascending or prostrate, generally not much over 1 dm. long, appressed silky-strigose, more or less leafy and branched; stipules ovate, acute; leaves pinnate, of 2–3 approximate pairs and a sessile terminal leaflet, silky above, more or less white-tomentulose beneath; leaflets 5–20 mm. long, obovate or oblong in outline, deeply dissected into narrowly oblong segments; cyme rather few-flowered, with erect branches; flowers 12–16 mm. in diameter, on rather slender pedicels; hypanthium silky, in fruit 5 mm. broad; bractlets linear-oblong, shorter than the narrowly lanceolate acute sepals, which are about 5 mm. long; petals obcordate, 6–8 mm. long; stamens about 20; styles filiform.

TYPE LOCALITY: Not given, but the type was collected on Pike's Peak, Colorado, June 25, 1896, Biltmore Colorado Expedition *1 425* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Alpine regions from Utah and Colorado to Alberta.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 40, f. 1–4* (as *P. rubricaulis*).

126. **Potentilla minutifolia** Rydb. Bull. Torrey Club **23**: 399. 1896.

Cespitose perennial; stems about 1 dm. long, slender, 1- or 2-leaved, sparingly silky or nearly glabrous, slightly striate; stipules ovate-lanceolate, the lower scarious and brown; basal leaves very small, with slender petioles 3–5 cm. long, silky-hirsute, slightly grayish beneath, pinnate with two pairs of leaflets, the upper pair and the sessile odd leaflet about 5 mm. long, the lower pair only 2–3 mm.; leaflets obovate, incised, with oval rounded segments; flowers 1 or 2, about 15 mm. in diameter; hypanthium sparingly hirsute, in fruit 7–8 mm. in diameter; bractlets oblong, usually obtuse, about half as long as the oblong-lanceolate, obtuse or acutish sepals, which are about 4 mm. long; petals obcordate, about a half longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Pike's Peak, Colorado.
DISTRIBUTION: Mountains of Colorado.
ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 275, f. 6–10;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 42, f. 6–10.*

127. **Potentilla saximontana** Rydb. Bull. Torrey Club **23**: 399. 1896.

Densely cespitose perennial; stems several, 1–3-flowered, less than 1 dm. long, silky-pubescent; basal leaves numerous, pinnate with 5–7 often approximate leaflets, silky-pubescent and somewhat tomentose beneath, short-petioled; leaflets deeply dissected into oblong, obtuse or acute segments; flowers 1–1.5 cm. in diameter; hypanthium densely silky; bractlets oblong, obtuse, shorter than the broadly ovate-triangular sepals, which are about 4 mm. long; petals broadly obcordate, 5–7 mm. long, much longer than the sepals; stamens about 20; style nearly terminal, about equaling the smooth achene.

TYPE LOCALITY: Colorado.
DISTRIBUTION: Mountains of Colorado.
ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 277, f. 6–10;* Mem. Dep. Bot. Columbia Univ. **2** *pl. 43, f. 6–10.*

128. **Potentilla filicaulis** (Nutt.) Rydb. Bull. Torrey Club **24**: 2. 1897.

Potentilla effusa filicaulis Nutt.; T. & G. Fl. N. Am. **1**: 437. 1840.

Cespitose perennial; stems several from the caudex, erect or ascending, 1 dm. high or less, silky-strigose, few-leaved; stipules ovate-lanceolate, acute, 5–10 mm. long; basal leaves many, pinnate with 2 or 3 pairs of approximate leaflets, or subdigitately 5–7-foliolate, densely silky on both sides and slightly tomentose beneath; leaflets cuneate, 1–2 cm. long, coarsely serrate with ovate teeth; stem-leaves small; cyme few-flowered; hypanthium white-silky, in fruit 4–5 mm. in diameter; bractlets oblong, much shorter than the ovate or ovate-lanceolate acute sepals, which are 4–5 mm. long; petals obcordate, 5–6 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Rocky Mountains towards the sources of the Platte. [Probably Wyoming.]
DISTRIBUTION: Rocky Mountains from Colorado to Idaho.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 40, f. 5–9.*

129. **Potentilla Macounii** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 101. 1898.

Cespitose perennial; stems usually more than one from the caudex, ascending, silky-villous, less than 1 dm. high, 1- or 2-leaved; stipules ovate, 5–10 mm. long; basal leaves many, pinnate with 3–5 pairs of rather approximate leaflets, silky on both sides and somewhat tomentose beneath; leaflets cuneate, about 1 cm. long, deeply cleft into oblong segments; stem-leaves much reduced; cyme few-flowered; hypanthium silky-villous, in fruit 7–8 mm. in diameter; bractlets lanceolate, often nearly as long as the ovate sepals, which are 4–5 mm. long; petals obcordate, 5–7 mm. long; stamens about 20; style filiform.

TYPE LOCALITY: Crow's Nest Pass, Alberta.
DISTRIBUTION: Rocky slopes, Alberta and Montana.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 41, f. 1, 2.*

130. **Potentilla proxima** Rydberg, sp. nov.

Perennial, with a short caudex; stems less than 1 dm. high, decumbent or ascending, grayish silky-strigose; basal leaves pinnate with usually 7 approximate leaflets; petioles 1–2 cm. long, silky-strigose; leaflets 7–15 mm. long, obovate, serrate with lance-ovate teeth, silky on both sides and white-tomentose beneath; stem-leaves few; the lower 5-foliolate, the upper 1–3-foliolate; stipules lanceolate, about 1 cm. long; cymes 4–7-flowered; hypanthium silky, in fruit 6 mm. broad; bractlets linear-lanceolate; sepals lanceolate; both about 4 mm. long; petals obcordate, 5 mm. long; stamens 20; styles filiform.

Type collected on the divide between Sevier and Beaver Rivers, south of Belknap Peak, Utah, in 1905, *Rydberg & Carlton 7369* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Mountains of south central Utah to Arizona.

131. **Potentilla luteosericea** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 101. 1898.

Perennial, with a thick deep root and a short erect caudex; stems several, decumbent or prostrate, 0.5–2 dm. long, few-leaved, yellowish-silky; basal leaves pinnate, with 3–5 approximate leaflets, densely yellowish silky-canescent on both sides; leaflets cuneate or obovate, entire at the base, 3–7-toothed toward the apex; hypanthium yellowish-silky, about 5 mm. in diameter; bractlets ovate, obtuse, a little shorter than the ovate-lanceolate acutish sepals; petals obcordate, light-yellow, exceeding the sepals by about a third.

TYPE LOCALITY: San Pedro Martin, Lower California.
DISTRIBUTION: Known only from the type locality.

XXVIII. **Candicantes.** Low cespitose perennials with thick woody caudex. Leaves numerous, pinnate. Leaflets finely dissected, silvery-canescent. Petals yellow, obcordate. Styles filiform.

132. **Potentilla candicans** Humb. & Bonpl.; Schlecht. Ges. Nat. Freunde Berlin Mag. **7**: 285. 1815.

Potentilla candicans nana Humb. & Bonpl.; Nestler, Monog. Potent. 34. 1816.
Potentilla Humboldtiana Tratt. Ros. Monog. **4**: 41. 1824.
Potentilla lineariloba Seringe, in DC. Prodr. **2**: 582. 1825.
Potentilla candicans crocea Lehm. Rev. Potent. 32. 1856.

Perennial, with a thick ligneous root and short caudex; stem from 0.5 to 3 dm. high, with few reduced leaves, more or less white-silky; basal leaves numerous, silvery-white, pinnate, with 6–10 pairs of deeply dissected leaflets; segments narrowly linear and more or less revolute; bractlets oblong, about half as long as the ovate or broadly lanceolate sepals, which are about 5 mm. long; petals yellow or (in var. *crocea*) orange, broadly obcordate, a little exceeding the sepals; style filiform.

TYPE LOCALITY: Tianguillo, between Mexico and Toluca.
DISTRIBUTION: Central Mexico.
ILLUSTRATIONS: Nestler, Monog. Potent. *pl. 3, f. 2; pl. 4, f. 2* (var *nana*); Moc. & Sessé, Calq. Dess. *pl. 298* (as *P. lineariloba*).

XXIX. **Leucophyllae.** Rather stout perennials. Leaves pinnate, with 5–13 leaflets, grayish- or whitish-silky, villous or tomentose, especially beneath, coarsely toothed but not dissected. Petals obcordate, longer than the sepals. Stamens about 20. Pistils sometimes few; styles filiform.

133. **Potentilla coloradensis** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 115. 1898.

Stems several from the perennial caudex, rather slender, silky-tomentose, in age glabrate, about 3 dm. high, branched; lower stipules scarious and brown, covering the caudex, the upper lanceolate, entire; basal leaves interruptedly and irregularly pinnate, leaflets 9–13, finely tomentose, or in age more glabrate; stem-leaves mostly ternate, or the upper simple; leaflets cuneate-oblanceolate, incisely serrate with triangular acute teeth; cyme branched, with ascending branches; hypanthium tomentose, in fruit 4–5 mm. in diameter; bractlets linear-lanceolate, scarcely half as long as the narrowly lanceolate acuminate sepals,

which are about 4 mm. long; petals obcordate, scarcely exceeding the sepals; stamens about 20; pistils 10–15 (rarely 20); styles filiform.

TYPE LOCALITY: South Park, Colorado.
DISTRIBUTION: Mountains of Colorado and Wyoming.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 51.*

134. **Potentilla rupincola** Osterhout, Bull. Torrey Club **26**: 256. 1899.

Perennial, with a branching caudex; stems slender, 2–3 dm. high, glabrous except for a few stiff, pointed hairs, erect or nearly so; basal leaves numerous, 6–10 cm. long, interrupted-pinnate; petioles 1–3 cm. long, sparingly strigose; leaflets 5–7, narrowly cuneate, 1–1.5 cm. long, sharply serrate above, glabrous, except the ribs and margins, which are slightly ciliate; stem-leaves smaller and with fewer leaflets; stipules lanceolate; cyme several-flowered, more or less tomentose; hypanthium tomentose, in fruit 3–4 mm. wide; bractlets linear-subulate, half as long as the narrowly lanceolate, acuminate sepals, which are 3–4 mm. long; petals broadly obovate, retuse, about the length of the sepals; stamens 18–20; pistils about 6; styles filiform.

TYPE LOCALITY: Dale Creek, Larimer County, Colorado.
DISTRIBUTION: Mountains of northern Colorado.

135. **Potentilla effusa** Dougl.; Lehm. Stirp. Pug. **2**: 8. 1830.

Perennial, with a tap-root and short caudex; stems many, 2–4 dm. high, slightly silky, ascending or diffuse, dichotomously paniculately branched with spreading-ascending branches; stipules lanceolate, subentire; basal leaves many, with slender petioles 2–5 cm. long, usually interruptedly pinnate with 5–11 leaflets; stem-leaves often 1–3-foliolate, grayish-tomentose on both sides; leaflets cuneate-oblong or oblanceolate, the upper often confluent, crenate with broad usually ovate teeth; flowers paniculate-cymose; bractlets linear or linear-lanceolate, usually much shorter than the lanceolate-acuminate sepals, which are 4–5 mm. long; petals obovate, retuse, a little longer than the calyx.; stamens 20; pistils 20–40; styles filiform.

TYPE LOCALITY: [Not given in the original publication, but supplied in Hooker's Flora.] Elevated grounds of the Assiniboine.
DISTRIBUTION: Plains and hills from Saskatchewan and Alberta to Nebraska and New Mexico.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 22;* Britt. & Brown, Ill. Fl. *f. 1928;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 41, f. 3–4.*

136. **Potentilla lupina** Rydberg, sp. nov.

Perennial, with a short caudex; stem 3–4 dm. high, nearly erect, densely grayish-pubescent with coarse ascending hairs; basal leaves pinnate with about 7 approximate leaflets; petioles 5–7 cm. long, grayish-pubescent like the stem; leaflets oblanceolate, 2–5 cm. long, coarsely crenate with ovate teeth, densely grayish-pubescent on both sides with rather coarse appressed hairs and tomentulose beneath; stem-leaves similar but smaller, short-petioled and only 3–5-foliolate; cyme open, with about a dozen flowers; hypanthium villous-hirsute, in fruit 7 mm. broad; bractlets lanceolate, about 3 mm. long; sepals lance-ovate, acuminate, 5–7 mm. long; petals obcordate, about equaling the sepals; stamens about 20; pistils many; styles filiform.

Type collected on the eastern slope of Big Horn Mountains, Wyoming, near the headwaters of Clear Creek and Crazy Woman River, in 1900, *Frank Tweedy 3215* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Type locality and vicinity.

137. **Potentilla Hippiana** Lehm. Stirp. Pug. **2**: 7. 1830.

Potentilla leucophylla Torr. Ann. Lyc. N. Y. **2**: 197. 1827. Not *P. leucophylla* Pall. 1773.
Potentilla leneophylla Torr.; Eat. Man. ed. 5. 344. 1829. [Probably a misprint for *leucophylla*.]
Potentilla dealbata Dougl.; Hook. Fl. Bor. Am. 1: 188, as synonym. 1833.
Potentilla pennsylvanica Hippiana T. & G. Fl. N. Am. 1: 438. 1840.

Perennial, with a woody root and short caudex; stem erect, 3–5 dm. high, more or less silky-canescent or white with appressed hairs, leafy, dichotomously branched above, the branches ascending; stipules 1–2 cm. long, ovate-lanceolate, acuminate, subentire; basal

leaves several, the petioles about 5 cm. long, leaflets 7–11; stem-leaves usually several, short-petioled, 3–7-foliolate; leaflets gradually diminishing downward, white- or grayish-silky on both sides and tomentose beneath, obovate or cuneate-oblong, 2–5 cm. long, deeply obtusely toothed, venose beneath, if at all only slightly decurrent on the rachis, the upper often confluent, margins not revolute; bractlets lanceolate, usually narrower than the sepals, but often nearly equaling them in length, acute; sepals ovate-lanceolate, 5–7 mm. long, acute; petals 6–8 mm. long, a little exceeding the calyx, obovate, retuse; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Sources of the Platte [Colorado].
DISTRIBUTION: Plains and hills from Saskatchewan and Alberta to New Mexico and Arizona.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 64*; Britt. & Brown, Ill. Fl. *f. 1927*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 50*.

138. **Potentilla argyrea** Rydberg, sp. nov.

Perennial, with a tap-root and short caudex; stems erect or nearly so, white-tomentose and silky; basal leaves pinnate, with 7–9 leaflets, 6–12 cm. long; petioles 3–6 cm. long, white-tomentose; leaflets oblanceolate or oblong-obovate, 1–3 cm. long, white-tomentose on both sides, coarsely crenate with ovate teeth; stem-leaves similar but smaller and the leaflets more crowded; inflorescence dense and contracted; stipules ovate, acuminate, entire, about 1 cm. long; hypanthium white silky-villous, in fruit 6 mm. broad; bractlets lanceolate, almost equaling the sepals in length; sepals ovate, acute, 4–5 mm. long; petals obcordate, 5 mm. long; stamens about 20; pistils many; styles filiform.

Type collected at Moose Jaw, Assiniboia [Saskatchewan], in 1896, *John Macoun 14441* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Plains of Saskatchewan and North Dakota.

139. **Potentilla propinqua** Rydb. Bull. Torrey Club **28**: 176. 1901.

Potentilla diffusa A. Gray, Mem. Am. Acad. II. 4: 41. 1849. Not *P. diffusa* Willd. 1809.
Potentilla Hippiana diffusa Lehm. Delect. Sem. Hort. Hamb. **1849**: 8. 1849.
Potentilla Hippiana pulcherrima S. Wats. Proc. Am. Acad. **8**: 555, in part. 1873.
Potentilla Hippiana propinqua Rydb. Bull. Torrey Club **24**: 3. 1897.

Perennial, with a tap-root and short caudex; stems decumbent, ascending, or erect, finely silky-strigose, 2–5 dm. high; basal leaves pinnate, with 9–11 leaflets, 5–15 cm. long; petioles silky-strigose, 2–8 cm. long; leaflets oblanceolate, 1–6 cm. long, coarsely crenate, green and silky above, white-tomentose beneath, the upper two pairs usually more or less decurrent on the rachis; stem-leaves reduced, 3–5-foliolate; stipules ovate or lanceolate, 1–2 cm. long; cymes open; hypanthium silky, in fruit about 6 mm. broad; bractlets lanceolate, 4–5 mm. long; sepals ovate-lanceolate, 5–6 mm. long; petals obcordate, 6–8 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Along Santa Fé Creek [New Mexico].
DISTRIBUTION: Mountain meadows, from the Black Hills of South Dakota and Alberta to New Mexico and Arizona.

140. **Potentilla pulcherrima** Lehm. Stirp. Pug. **2**: 10. 1830.

Potentilla pennsylvanica pulcherrima T. & G. Fl. N. Am. 1: 438. 1840.
Potentilla Hippiana pulcherrima S. Wats. Proc. Am. Acad. 8: 555. 1873.

Perennial, with a tap-root and short caudex; stems erect or ascending, 4–6 dm. high, pubescent with ascending hairs; basal leaves pinnate, with 5–7 approximate leaflets; petioles 6–15 cm. long, pubescent with ascending hairs; leaflets oblanceolate, 2–7 cm. long, crenate, green and silky above, densely white-tomentose beneath, the lower two pairs spreading or the lowest reflexed, usually very close together; cyme open and many-flowered; hypanthium silky-hirsute, in fruit 7 mm. broad; bractlets 4–5 mm. long, lanceolate; sepals ovate-lanceolate, acuminate, 5–7 mm. long; petals obcordate, 6–8 mm. long; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: [Not given in the original publication, but supplied in Hooker's Flora.] Rocky Mountains, between 52° and 56°.
DISTRIBUTION: In the mountains from Saskatchewan and Alberta to Colorado and Utah, but rare.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 28*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 22*.

141. **Potentilla viridior** Rydberg, sp. nov.

Cespitose perennial, with a short caudex; stems erect or ascending, glabrous or nearly so, 2–3 dm. high; basal leaves pinnate, with 5–7 leaflets; petioles 3–8 cm. long, sparingly silky-strigose or nearly glabrous; leaflets 0.5–3 cm. long, obovate, green and slightly silky above, paler, silky and sparingly tomentulose beneath, deeply serrate with lanceolate acute teeth; lower stem-leaves similar, the upper 3-foliolate; cyme 3–12-flowered; hypanthium silky, in fruit 6 mm. broad; bractlets narrowly linear-lanceolate, 3–5 mm. long; sepals lanceolate, 4–6 mm. long; petals obcordate, 6–8 mm. long; stamens about 20; pistils rather few; styles filiform.

Type collected in the mountains of Estes Park, in 1897, *G. E. Osterhout 12* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Mountains of Colorado.

142. **Potentilla ambigens** Greene, Erythea **1**: 5. 1893.

Perennial, with a thick woody tap-root; stem stout, 6–7 dm. high, more or less striate, densely silky-villous with long spreading hairs, branched above; stipules large, those of the basal leaves ovate-oblong, subentire, 2–4 cm. long, more or less membranous and brownish, those of the stem ovate, acuminate, green, and more or less toothed with lanceolate teeth; basal leaves with petioles 10–20 cm. long, irregularly pinnate, silky-villous beneath, especially on the rachis and the veins, slightly tomentulose when young, more glabrous above; leaflets 9–15, obovate-oblong, 3–6 cm. long, coarsely serrate, more or less decurrent on the rachis, especially the uppermost, which often are confluent; stem-leaves similar but short-petioled and with fewer leaflets; bractlets lanceolate, equaling or sometimes even exceeding the sepals, which are lanceolate, acute, 6–7 mm. long; petals about 8 mm. long, obcordate, about a fourth longer than the sepals; stamens 25; pistils many; styles filiform.

TYPE LOCALITY: Bear Creek, above Morrison, Colorado.
DISTRIBUTION: Mountains from New Mexico to Wyoming.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 53*.

143. **Potentilla Bruceae** Rydberg, sp. nov.

Perennial, with a thick woody cespitose caudex; stems several, ascending, 1.5–2 dm. high, finely villous, more or less tinged with red; basal leaves 3–5 cm. long, densely and softly villous, pinnate, with 5–7 closely approximate leaflets; petioles 1–2 cm. long, villous; leaflets broadly cuneate or flabelliform, 7–15 mm. long, coarsely toothed at the apex with 4–7 broadly ovate teeth; stem-leaves nearly all ternate and short-petioled; stipules ovate, 7–10 mm. long, acute; cyme open, 3–5-flowered; hypanthium villous, in fruit 7 mm. broad; bractlets lanceolate, about 3 mm. long; sepals ovate-lanceolate, acuminate, 5–6 mm. long; petals obcordate, 6–7 mm. long; stamens about 20; pistils many; styles filiform.

Type collected on Warner Mountains, Oregon, in 1898, *Mrs. C. C. Bruce 2301* (herb. N. Y. Bot. Gard.).

144. **Potentilla Breweri** S. Wats. Proc. Am. Acad. **8**: 555. 1873.

Potentilla Breweri expansa S. Wats. Bot. Calif. **1**: 179. 1876.
Potentilla plattensis leucophylla Greene, Erythea **1**: 5. 1893.

Perennial, with a thick root and short caudex; stems several from the caudex, erect-ascending to decumbent, 1–2.5 dm. high, tomentose, few-leaved; stipules ovate, the lower membranous, brownish and entire, the upper broad, entire or incised; leaves with short petioles, densely white silky-villous; leaflets crowded and often somewhat verticillate, about 1 cm. long, cuneate and deeply cut-toothed at the apex, with lanceolate divisions; stem-leaves similar, but with fewer leaflets; inflorescence dense in the typical form or in the variety open; flowers 1–1.5 cm. in diameter; hypanthium silky-villous; bractlets oblong or lanceolate, acute, usually much shorter than the triangular-ovate, acute or acuminate sepals; petals obcordate, 5–10 mm. long, exceeding the calyx; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Mono Pass in the Sierra [California].
DISTRIBUTION: Mountains of California and adjacent Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 52* (var. *expansa* S. Wats.).

XXX. **Multijugae.** Perennials, with a very short rootstock and a deep root. Stem erect, ascending or prostrate, usually less than 3 dm. high. Leaves hirsute or strigose, not tomentose, pinnate, with 3–13 pairs (in *P. Drummondii* sometimes only 1 or 2 pairs) of coarsely toothed or dissected leaflets. Petals yellow or white, obcordate. Styles long and slender, usually filiform.

145. **Potentilla klamathensis** Rydberg, sp. nov.

Perennial, with a tap-root and short caudex; stems diffuse or ascending, slender, 1–2 dm. high, sparingly and loosely ciliate with at first ascending and soon spreading hairs, slightly exceeding the basal leaves; basal leaves 1–1.5 dm. long, pinnate, with 13–21 leaflets; leaflets 1–2 cm. long, dissected into linear acute segments, loosely hairy; stem-leaves reduced; stipules lanceolate, acuminate; inflorescence 1–5-flowered; pedicels 1–2 cm. long, in fruit arcuate-spreading and often abruptly curved below the hypanthium; bractlets linear-oblong or linear-lanceolate, acute, 3 mm. long, or in fruit 5 mm. long; sepals linear-lanceolate, acute, 5 mm. long, in fruit 6–7 mm. long; petals yellow, about 7 mm. long, obovate, emarginate; stamens about 20; styles filiform.

Type collected near Fort Klamath, in 1894, *J. B. Leiberg 660* (U. S. Nat. Herb. *no. 282827*).
DISTRIBUTION: Klamath and Goose Lake valleys of Oregon and California.

146. **Potentilla millefolia** Rydb. Bull. Torrey Club 23: 433. 1896.

Potentilla plattensis Greene, Fl. Fran. 1: 64. 1891. Not *P. plattensis* Nutt. 1840.

Low, prostate or spreading perennial; stems numerous from the caudex, about 1 dm. long, few-leaved, only a little exceeding the basal leaves, appressed-strigose, often sparingly so; lower stipules lanceolate, scarious and brown, the upper ovate-lanceolate, acute or acuminate, green, often 2–3-cleft; basal leaves pinnate, of many leaflets, sparingly strigose-ciliate, nearly as long as the stems; stem-leaves much reduced; leaflets divided nearly to the base into linear-subulate divisions, which therefore look as if verticillate; pedicels slender, 1–2 cm. long, in fruit abruptly reflexed below the strigose-hirsute hypanthium; bractlets and sepals lanceolate, acute, the former slightly smaller, sometimes 3-lobed, about 5 mm. long; corolla 12–18 mm. in diameter; petals obcordate, deeply notched, longer than the sepals; stamens about 20; achene smooth, with a slender filiform nearly terminal style.

TYPE LOCALITY: California.
DISTRIBUTION: Mountains of California.
ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 277, f. 1–5*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 43, f. 1–5*.

147. **Potentilla Hickmani** Eastw. Bull. Torrey Club 29: 77. 1902.

Perennial, with a woody tap-root, and short caudex densely clothed with brown dry stipules; stems low, decumbent, 8–15 cm. long, sparingly strigose; basal leaves pinnate, with usually 13 leaflets, which are almost digitately 3–4-cleft into linear or lanceolate divisions, 2–8 mm. long, 1–3 mm. wide, glabrous or with a few scattered hairs; stipules lanceolate or ovate, acuminate, about 5 mm. long; stem-leaves few, with few approximate leaflets; inflorescence 1- or 2-flowered; pedicels in fruit arcuate-spreading; hypanthium appressed-pubescent, 5 mm. broad; bractlets oblong, obtuse, about half as long as the ovate sepals, which are 4–5 mm. long; petals yellow, 6 mm. long, obcordate; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Forest of *Pinus radiata*, near the reservoir of Pacific Grove, California.
DISTRIBUTION: Vicinity of Monterey, California.

148. **Potentilla plattensis** Nutt.; T. & G. Fl. N. Am. 1: 439. 1840.

Potentilla plattensis pedicellata A. Nelson, Bull. Torrey Club 28: 223. 1901.

Low perennial, 1–2 dm. high, decumbent or spreading, usually with numerous subsimple appressed-strigose stems from the caudex; stipules very large for the size of the plant, about 1 cm. long, broadly ovate, subentire and often obtuse; basal leaves many, pinnate; leaflets 9–17, light-green in color, appressed-strigose or glabrate, obovate-oblong

in outline, deeply pinnatifid with oblong obtuse lobes, about 5 mm. long in the typical form, but in the more common form with nearly linear more acutish lobes, often 8 mm. long; stem-leaves reduced, the uppermost only 3-cleft; flowers in few-flowered, rather open cymes, about 1 cm. in diameter; pedicels in fruit arcuate-spreading; hypanthium strigose; sepals and bractlets lanceolate, long-acuminate, the latter about one half the size of the sepals, which are 3–4 mm. long; petals yellow, obovate, slightly retuse, longer than the sepals; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Plains of the Platte.
DISTRIBUTION: Valleys, from New Mexico and Utah to Saskatchewan.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 6, f. 2;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 46, f. 6–11.*

149. **Potentilla arizonica** Greene, Pittonia **1**: 104. 1887.

Ivesia pinnatifida S. Wats. Proc. Am. Acad. **20**: 364. 1885. Not *P. pinnatifida* L. 1753.

Perennial, with a thick woody branched caudex; stems ascending or erect, a little over 1 dm. high, subscapose, grayish-strigose; leaves nearly all basal, rather irregularly pinnate, with 15–25 leaflets, grayish strigose-hirsute; leaflets obovate in outline, divided to near the midrib into 7–9 linear diverging segments; stipules brown, adnate to the petiole for a long distance, striate; cyme 5–8-flowered; hypanthium strigose, in fruit 5–8 mm. in diameter; bractlets oblong or lanceolate, a little shorter than the ovate sepals; petals unknown; stamens 20; pistils many; styles filiform.

TYPE LOCALITY: Meadows near Flagstaff, Arizona.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 45, f. 2–5.*

150. **Potentilla versicolor** Rydberg, sp. nov.

Perennial, with a thick caudex; stems about 2 dm. long, decumbent or ascending, sparingly appressed-silky; basal leaves 5–10 cm. long, white-silky and tomentose when young, more green in age, pinnate, with 15–25 leaflets, which are 5–8 mm. long, cuneate or flabelliform in outline, divided to near the base into 3–7 linear-oblong acutish divisions; stem-leaves few, small, with few leaflets; stipules lanceolate, entire; inflorescence 3–6-flowered, open; bractlets elliptic or oval, often obtuse, 3 mm. long; sepals lanceolate, acute, 5 mm. long; hypanthium and calyx silky with somewhat spreading hairs; petals yellow, rounded-obcordate, 5 mm. long; stamens about 20; pistils many; styles filiform.

Type collected on Grayhart Buttes, Oregon, in 1896, *Coville & Leiberg 307* (U. S. Nat. Herb. *no. 275729*).

151. **Potentilla Nelsoniana** Rydberg, sp. nov.

Potentilla pinnatisecta A. Nels. Wyo. Exp. Sta. Bull. **28**: 104, in part, as to description. 1896. Not *P. diversifolia pinnatisecta* S. Wats. 1871.

Perennial, with a tap-root and short caudex; stamens erect or ascending, 1.5–3 dm. high, glabrous or sparingly strigose; basal leaves pinnate, with 9–15 leaflets, the earlier appressed-pubescent, the rest glabrate and more or less glaucous; petioles 1–4 cm. long, glabrous or nearly so; leaflets cuneate, 1–3.5 cm. long, the upper three pinnately cleft with 5–7 lance-oblong divisions, the rest 2–3-cleft at the apex or some entire; stem-leaves small, 3–7-foliolate, the upper sessile; stipules ovate, entire, 7–15 mm. long; cyme 10–25-flowered, with ascending branches; hypanthium strigose, about 5 mm. broad in fruit; bractlets linear or lanceolate, 3 mm. long; sepals lance-ovate, 4–5 mm. long, acute; petals obovate, emarginate, 5–6 mm. long; stamens about 20; pistils many; styles filiform.

Type collected near La Plata Mines, Wyoming, in 1895, *Aven Nelson 1819* (herb. Columbia Univ.).
DISTRIBUTION: Medicine Bow and Uintah Mountains of Wyoming and northern Utah.

152. **Potentilla decurrens** (S. Wats.) Rydb. Bull. Torrey Club **23**: 396. 1896.

Potentilla dissecta decurrens S. Wats. Proc. Am. Acad. 8: 557. 1873.

Perennial, with a short cespitose caudex; stems glabrous up to the inflorescence, less than 1 dm. high, ascending; basal leaves pinnate, with 11–13 leaflets, which are rather

approximate, broadly cuneate, usually 3-toothed at the apex, 1 cm. long or less, dark-green and glabrous or ciliate towards the apex; stem-leaves 5-foliolate or ternate; stipules ovate, 5–7 mm. long; cymes 4–10-flowered; hypanthium strigose, in fruit about 5 mm. broad; bractlets linear-lanceolate, 3 mm. long; sepals lanceolate, acute, 4–5 mm. long; petals obovate, 5 mm. long; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Parks of the Uintahs [Utah].
DISTRIBUTION: Central and north-eastern Utah.

153. **Potentilla wyomingensis** A. Nelson, Bull. Torrey Club **27**: 32. 1900.

Potentilla monidensis A. Nelson, Bull. Torrey Club **27**: 266. 1900.

Perennial, with a woody tap-root and cespitose caudex; stems 1–2.5 dm. high, strigose, erect or ascending; basal leaves crowded on the crown, pinnate, with 7–19 leaflets, white silky-strigose when young, sometimes glabrate in age; leaflets 1 cm. long or less, the upper pinnatifid, the lower 3–5-fid with linear or linear-oblong divisions; cymes irregular, open, 3–9-flowered; pedicels ascending; hypanthium hirsute-strigose, in fruit 5–7 mm. broad; bractlets small, oblong-linear, 2–3 mm. long; sepals ovate-lanceolate, acuminate, 4–5 mm. long; petals broadly obovate, retuse, 6–8 mm. long; stamens 20; pistils 15–20; styles filiform.

TYPE LOCALITY: Grassy slopes near the highest summits of Seminole Mountains, Wyoming.
DISTRIBUTION: Mountains of Wyoming, Montana, and Idaho.

154. **Potentilla ovina** J. M. Macoun, Can. Rec. Sci. **6**: 464. 1896.

Potentilla diversifolia pinnatisecta S. Wats. Bot. King's Expl. 87. 1871.
Potentilla pinnatisecta A. Nelson, Bull. Wyo. Exp. Sta. **28**: 104. 1896.

Cespitose perennial, with a short caudex; stems mostly erect or ascending, usually less than 1 dm. high, strigose, with 2 or 3 reduced leaves, 3–6-flowered; stipules ovate, lanceolate, acute; basal leaves crowded, 2–4 cm. long, appressed-hoary, especially when young, pinnate, with 7–11 crowded leaflets; leaflets deeply cleft into oblong obtuse lobes; hypanthium hirsute-strigose, in fruit about 8 mm. in diameter and erect; bractlets and sepals lanceolate, the former 3 mm. long, acute, the latter 4 mm. long, acute or acuminate; corolla about 1 cm. in diameter; petals obcordate, about a third longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Castle Mountain [Alberta].
DISTRIBUTION: High mountains from Alberta to Wyoming and Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 46, f. 1–5*.

155. **Potentilla Richardii** Lehm. Delect. Sem. Hort. Hamb. **1849**: 6. 1849.

Potentilla ancistifolia Galeotti; Lehm. Delect. Sem. Hort. Hamb. **1849**: 6, as a synonym. 1849.

Perennial, with a short caudex; stems short, ascending or erect, few-flowered, hirsute, with spreading hairs; basal leaves pinnate; leaflets about 7, hairy, with few spreading hairs, cuneate-flabelliform, incised or deeply 5–7-toothed at the end, with broadly oblong teeth; stem-leaves similar but smaller and pinnately 5-foliolate or the upper ones 3-foliolate; stipules broadly lanceolate, entire; bractlets oblong, shorter than the broadly ovate sepals; petals yellow, obcordate, nearly twice as long as the sepals; stamens about 20; styles filiform.

TYPE LOCALITY: Peak of Orizaba, Mexico.
DISTRIBUTION: Mountains of central Mexico.
ILLUSTRATION: Lehm. Rev. Potent. *pl. 5, f. 1*.

156. **Potentilla cascadensis** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 109. 1898.

Stem erect or ascending, from a perennial rootstock, simple, with 2 or 3 small leaves, slightly strigose or glabrate, strict; stipules very large, broadly ovate, 10–15 mm. long, the lower ones brown and scarious and covering the ascending rootstock; basal leaves pinnate;

leaflets 7–13, slightly silky-strigose or in age glabrate, 1–2 cm. long, broadly cuneate to nearly orbicular in outline, deeply incised with ovate teeth at the apex; stem-leaves small, with 3–5 leaflets; hypanthium silky-hirsute or strigose, in fruit about 1 cm. in diameter; bractlets oblong to oval, two thirds the length of the broadly lanceolate, acute sepals, which are 5–7 mm. long; petals yellow, obcordate, 6–10 mm. long; stamens 20; styles filiform.

TYPE LOCALITY: Chiquash Mountains of the Cascades, Washington.
DISTRIBUTION: Cascade Mountains of Washington and Oregon to Lassen's Peak, California.

157. **Potentilla Drummondii** Lehm. Stirp. Pug. 2: 9. 1830.

Potentilla dissecta S. Wats. Proc. Am. Acad. 8: 556, in part. 1873.
Potentilla dissecta Drummondii Kurtz, Bot. Jahrb. 19: 374. 1894.

Perennial, with a short caudex; stem erect, 3–6 dm. high, slightly hairy, few-leaved, branched above; stipules about 2 cm. long, ovate-lanceolate, acuminate, veined, subentire; basal leaves pinnate, hairy, especially when young; petioles 5–10 cm. long, slightly strigose; leaflets 5–11, somewhat crowded, often verticillate and the upper confluent, veined, 2–6 cm. long, obovate-cuneate, deeply and sharply serrate with linear-oblong or lanceolate acute teeth; stem-leaves 1–5-foliolate, short-petioled or subsessile; flowers long-pedicelled; hypanthium hirsute, veined, in fruit 7–9 mm. broad; bractlets lanceolate, shorter than the ovate-lanceolate acuminate sepals, which are 6–7 mm. long; petals 6–10 mm. long, obcordate, longer than the sepals; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: [Not given in the original publication, but supplied in Hooker's Flora.] Mountains, north of the Smoking River, in latitude 56°.
DISTRIBUTION: Mountains of Alberta and British Columbia to northern California.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 65;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 47.*

158. **Potentilla multijuga** Lehm. Delect. Sem. Hort. Handb. **1849**: 6. 1849.

Perennial, with a tap-root; stem erect, 3–7 dm. high, slightly silky-strigose, more or less leafy; stipules large, 1–2 cm. long, ovate, entire; basal leaves numerous, often 2–3 dm. long, slightly hairy or glabrate, pinnate, with 13–27 obovate-cuneate leaflets, which are 1–4 cm. long, coarsely toothed above the middle; stem-leaves smaller and with fewer leaflets; cyme narrow, with rather slender pedicels; flowers about 15 mm. in diameter; hypanthium slightly silky, in fruit about 1 cm. in diameter; bractlets oblong, about one third shorter than the ovate sepals, which are 5–6 mm. long, acute or short-acuminate; petals broadly obcordate, about one third longer than the sepals; stamens about 20; pistils about 30; styles nearly terminal, filiform, about twice as long as the achenes.

TYPE LOCALITY: California.
DISTRIBUTION: Vicinity of Los Angeles, California.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 7;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 48.*

159. **Potentilla crinita** A. Gray, Mem. Am. Acad. II. **4**: 41. 1849.

Perennial, with a short cespitose caudex; stems several, ascending, 2–3 dm. high, often diffusely few-branched, silky-pilose; stipules 1–2 cm. long, ovate-lanceolate, acuminate, subentire; basal leaves many, short-petioled, pinnate, silky-villous (pubescence projecting far beyond the tips of the leaves), nearly glabrous on the upper surface; leaflets 11–15, approximate, cuneate, 1.5–2 cm. long, toothed at the apex, generally remaining conduplicate; stem-leaves few, small, 3–5-foliolate; bractlets lanceolate, acute, a little shorter than the ovate-lanceolate acute sepals, which are about 4 mm. long; petals obovate, deeply retuse, exceeding the calyx; stamens about 20; pistils many; styles filiform.

TYPE LOCALITY: Along Santa Fé Creek [New Mexico].
DISTRIBUTION: Dry places from Colorado and Utah to New Mexico and Arizona.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 21;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 54.*

160. **Potentilla Lemmoni** (S. Wats.) Greene, Pittonia **1**: 104. 1885.

Ivesia Lemmoni S. Wats. Proc. Am. Acad. **20**: 365. 1885.

Perennial, with a branched short caudex; stems 3–4 dm. high, branched, slender but strict, more or less tinged with brown, slightly silky-strigose; upper stipules ovate-lanceo-

late, entire, 5–10 mm. long, the lower brown, scarious, 15 mm. long; basal leaves several, pinnate, grayish appressed-silky; leaflets 3–5 pairs, 1–2 cm. long, of rather firm texture, oblong, entire or 3-toothed at the apex, or with a few additional small teeth above the middle; cyme branched, open, with slender pedicels; hypanthium finely strigose, cupulate, in fruit 3–4 mm. in diameter; bractlets linear, about half as long as the lanceolate acuminate sepals, which are 3–4 mm. long; petals yellow, obovate, about equaling the sepals in length; stamens about 20; pistils 5–12; styles filiform.

TYPE LOCALITY: Oak Creek, near Flagstaff, Arizona.
DISTRIBUTION: New Mexico and Arizona.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 55.*

XXXI. **Multifidae.** Mostly low perennials. Leaves pinnate, with 5–15 incised or dissected leaflets, more or less tomentose beneath. Petals yellow, obovate, slightly if at all emarginate, usually not exceeding the sepals. Style very short, nearly always thickened and glandular at the base.

161. **Potentilla Sommerfeltii** Lehm. Delect. Sem. Hort. Hamb. **1849**: 6. 1849.

Cespitose perennial; caudex covered with the brown scarious broadly ovate stipules; stem 3–5 cm. high, slightly silky, scapose, 1- or 2-flowered; leaves pinnate, with 5 leaflets, the terminal one stalked, glabrate above, finely tomentose beneath; leaflets obovate in outline, divided to near the midrib into linear-oblong obtuse segments; bractlets oblong, obtuse, much shorter than the similar sepals, which are about 3 mm. long; petals obovate-cuneate, slightly emarginate, about 5 mm. long; stamens about 20; pistils many; styles short, slightly thickened and glandular at the base.

TYPE LOCALITY: Greenland.
DISTRIBUTION: Spitzbergen, Greenland, and arctic coast of North America.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 10, f. 2;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 35, f. 1, 2.*

162. **Potentilla subarctica** Rydberg, sp. nov.

Potentilla pulchella elatior Lange, Comp. Fl. Groenl. 4. 1880. Not *P. elatior* Willd. 1815.

A low perennial, with thick tap-root and short scaly caudex; stems decumbent at the base, sparingly villous, more or less purple-tinged, 1–3 dm. high; basal leaves pinnate, with 3–5 leaflets, the terminal one usually decidedly stalked; stipules scarious, brown; petioles 3–5 cm. long, more or less densely villous; leaflets obovate, green but appressed-silky above, grayish-tomentose beneath, deeply cleft into oblong or lanceolate, mostly obtuse divisions; the terminal leaflets 2–3 cm. long, the lower ones much smaller; stem-leaves mostly 3-foliolate, the lower petioled, the upper sessile; stipules foliaceous, lanceolate to elliptic; cyme open; hypanthium villous; bractlets usually elliptic, obtuse, nearly equaling the ovate acute sepals, which are about 5 mm. long; petals yellow, broadly obovate, usually emarginate; stamens about 20; pistils numerous; styles short and glandular at the base.

TYPE LOCALITY: Ritenbenk, West Greenland.
DISTRIBUTION: Greenland and the arctic islands and coast of North America.

163. **Potentilla pulchella** R. Br. Chlor. Melv. 19. 1823.

? *Potentilla sericea* Grev. Mem. Wern. Soc. **3**: 430. 1821.
? *Potentilla Keilhavii* Sommerf. Mag. Naturvid. II. **1**: 244. 1832.
Potentilla nivea pulchella Durand, Proc. Acad. Phila. **1863**: 94. 1863.

Cespitose perennial, with short prostrate branches from a caudex covered with the brown scarious stipules; stems generally less than 1 cm. long, few-flowered, silky-hirsute with yellowish hairs; leaves short-petioled, pinnate, with 2 pairs of leaflets and a sessile terminal one, yellowish-silky and also a little tomentose beneath; leaflets obovate-cuneate in outline, deeply dissected into linear-lanceolate segments, the lower pair smaller and often entire; hypanthium yellowish-silky; bractlets oblong, shorter than the ovate sepals, which are 4–5

mm. long; petals obovate, retuse, a little exceeding the calyx, 5–6 mm. long; stamens 20; pistils many; styles short, glandular and thickened at the base.

TYPE LOCALITY: Melville Island.
DISTRIBUTION: Spitzbergen, Greenland, arctic coast of North America, and Wrangel Island, off the coast of Siberia.
ILLUSTRATIONS: Lehm. Monog. Potent, Suppl. 1: *pl. 7, f. 1;* Fl. Dan. *pl. 2234;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 36, f. 6–10.*

164. **Potentilla paucijuga** Rydberg, sp. nov.

Perennial, with a short caudex; stems about 2 dm. high, tinged with purple, somewhat villous-hirsute, ascending or decumbent; basal leaves pinnate, with 5 leaflets; petioles villous-hirsute with spreading hairs, 4–5 cm. long; terminal leaflet broadly obovate, 2–2.5 cm. long, sessile, green but densely hairy above, white-tomentose and silky beneath, divided two thirds to the midrib into linear or oblong, acutish divisions; lateral leaflets similar but smaller; stem-leaves 1 or 2, trifoliolate, short-petioled; stipules lanceolate, 1–1.5 cm. long; cyme 10–13-flowered; hypanthium yellowish-villous; bractlets linear, 2–3 mm. long, acute; sepals lanceolate, acute, 5 mm. long; petals yellow, broadly obovate, emarginate, about 6 mm. long; stamens about 20; pistils many; styles short, glandular and slightly thickened at the base.

Type collected on grassy slopes in the La Sal Mountains, Utah, at an altitude of 2700–3300 m., in 1899, *C. A. Purpus 251,* in part (U. S. Nat. Herb. *no. 505062,* in part).

165. **Potentilla multifida** L. Sp. Pl. 496. 1753.

Fragaria multifida Crantz, Inst. **2**: 176. 1766.

Cespitose perennial; stems many from the caudex, low, at last spreading, generally less than 2 dm. high, appressed silky-strigose; stipules large, lanceolate, acuminate, more or less scarious and brown; leaves pinnate, with 5–7 leaflets, grayish-tomentose beneath, smooth above; leaflets pectinately divided to very near the midrib into linear acute revolute divisions; hypanthium silky-strigose, in fruit 5–7 mm. in diameter; bractlets oblong-lanceolate, acute, a little shorter than the ovate-lanceolate acute sepals, which are 3–4 mm. long; petals cuneate, emarginate, a little exceeding the sepals, 4–5 mm. long; stamens about 20; pistils many; styles short, scarcely thickened at the base.

TYPE LOCALITY: Siberia.
DISTRIBUTION: Northern and alpine Europe and Asia, and subarctic America west to Great Slave Lake.
ILLUSTRATIONS: Mus. Helv. 1: *pl. 8;* Britt. & Brown, Ill. Fl. *f. 1931;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 37, f. 6–10.*

166. **Potentilla pseudosericea** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 98. 1898.

Potentilla holosericea Nutt.; Rydb. *loc. cit.*, as a synonym. Not *P. holosericea* Griseb. 1843.

Cespitose perennial; stems several from the caudex, ascending or decumbent, 5–10 cm. high, few-leaved, grayish-silky; lower stipules brown and scarious, covering the caudex; upper ones small, 5 mm. long, ovate, silky; leaves with rather short petioles, pinnate, with 5–9 approximate leaflets, grayish-silky or hirsute above, white-tomentose and silky beneath; leaflets 1–2 cm. long, obovate in outline, divided to near the midrib into linear obtuse segments; cyme few-flowered; hypanthium grayish-silky, in fruit about 5 mm. in diameter; bractlets oblong, shorter than the ovate or ovate-lanceolate sepals, which are 4–5 mm. long; petals obovate, about equaling the sepals; stamens 20; pistils numerous; styles short, thickened and glandular at the base.

TYPE LOCALITY: Rocky Mountains.
DISTRIBUTION: Wyoming and Colorado to Nevada.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 36, f. 1–5.*

167. **Potentilla bipinnatifida** Dougl.; Hook. Fl. Bor. Am. **1**: 188. 1833.

Potentilla arguta Lehm. Monog. Potent. 62. 1820. Not *P. arguta* Pursh. 1814.
Potentilla pennsylvanica arguta Seringe, in DC. Prodr. **2**: 581. 1825.

? *Bootia sericea* Raf. Aut. Bot. 169. 1840.
Potentilla pennsylvanica bipinnatifida T. & G. Fl. N. Am. 1: 438. 1840.
Potentilla candicans Fisch.; Lehm. Rev. Potent. 60, as a synonym. 1856.

Stems several from a perennial root, erect or ascending, usually strict and simple, leafy, finely white silky-villous, 3–5 dm. high; basal leaves many, with petioles 5–10 cm. long, pinnate, with 7–9 approximate leaflets, densely and finely silky above, white-tomentose beneath; leaflets 2–4 cm. long, obovate in outline, pectinately divided to near the midrib into almost linear, mostly obtuse segments; stem-leaves similar, but short-petioled or subsessile and often subdigitate; stipules ovate or lanceolate, 2–4 cm. long, sometimes toothed; cyme dense and contracted; hypanthium white-silky, in fruit about 8 mm. in diameter; bractlets oblong-lanceolate, shorter than the ovate sepals, which are 4–5 mm. long; petals obovate, cuneate, truncate, about equaling or slightly exceeding the sepals; stamens about 20; pistils many; styles short, glandular and thickened at the base.

TYPE LOCALITY: Plains of the Saskatchewan.
DISTRIBUTION: On the plains and hills from Manitoba and Minnesota to Colorado and Alberta.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 39, f. 1–5.*

168. **Potentilla platyloba** Rydb. Bull. Torrey Club 33: 143. 1906.

Potentilla pulcherrima Rydb. Fl. Neb. 21: 16. 1895. Not *P. pulcherrima* Lehm. 1830.
Potentilla bipinnatifida platyloba Rydb. Mem. Dep. Bot. Columbia Univ. 2: 100. 1898.

Stout perennial; stems several, erect or ascending, 3–5 dm. high, pubescent with white appressed hairs; leaves pinnate, usually with but two pairs of leaflets; petioles of the basal leaves 4–7 cm. long, white-strigose; leaflets obovate, 2–6 cm. long, greenish and silky-strigose above, white-tomentose beneath, cleft into broad lanceolate or oblong divisions; stem-leaves short-petioled and often subdigitate; stipules large, ovate, 1.5–2 cm. long, often coarsely toothed; inflorescence narrow, with elongate erect branches, often flat-topped; hypanthium white-villous, deep, about 6 mm. broad in fruit; bractlets 4–5 mm. long, lanceolate or oblong, acute, nearly equaling the ovate acute sepals; petals about equaling the sepals, obovate; stamens 20; pistils numerous; styles short, thick and glandular at the base,

TYPE LOCALITY: Sheridan County, Nebraska.
DISTRIBUTION: Plains, especially in sandy soil, from Hudson Bay to Colorado and Alberta.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 39, f. 6–7.*

169. **Potentilla virgulata** A. Nelson, Bull. Torrey Club 27: 265. 1900.

Perennial, with a tap-root and short caudex; stems 1 or 2, simple, erect, strict, 3–4 dm. high, slightly appressed-pubescent; basal leaves pinnate, with 5–7 leaflets; petioles 6–10 cm. long, sparingly appressed-hairy; leaflets obovate in outline, 1–2 cm. long, green and sparingly appressed-silky above, grayish or white beneath, dissected into narrowly linear divisions with revolute margins; stem-leaves 5-foliolate, with more approximate leaflets, or the uppermost 3-foliolate; stipules ovate-lanceolate, often acuminate; cyme several-flowered, congested; hypanthium grayish-pubescent, in fruit 4 mm. broad; bractlets linear, equaling the lanceolate sepals, 2–3 mm. long; petals small, orbicular, about 4 mm. long, slightly emarginate; stamens about 20; pistils numerous; styles short, glandular at the base.

TYPE LOCALITY: Wet, grassy flat, near Mammoth Hot Springs, Wyoming.
DISTRIBUTION: Wyoming and Utah to Alaska.

170. **Potentilla pectinata** Raf. Aut. Bot. 164. 1840.

Potentilla pennsylvanica A. Gray, Man. 122. 1848. Not *P. pennsylvanica* L. 1767.
Potentilla litoralis Rydb. Bull. Torrey Club 23: 264. 1896.

Perennial, with a short cespitose caudex; stem decumbent or ascending, 2–4 dm. long, simple, slightly appressed silky-strigose; lower stipules lanceolate, scarious and brown, the upper ovate, green, more or less toothed; leaves pinnate, with 5 approximate leaflets, the lower pair the smaller, or subdigitately 5-foliolate, grayish-tomentose and

veiny beneath, nearly glabrous above; leaflets obovate, divided to near the midrib into linear-oblong obtuse divisions; hypanthium strigose and slightly tomentose, in fruit about 8 mm. in diameter; bractlets lanceolate-oblong, about 4–5 mm. long; sepals ovate-triangular, acuminate, 5–6 mm. long; petals obovate, cuneate, truncate or slightly emarginate, about equaling the calyx; stamens 20–25; styles short, terminal, thickened and glandular at the base; achenes smooth, numerous.

TYPE LOCALITY: Canada.
DISTRIBUTION: Sandy or rocky shores, Newfoundland and Labrador to New Hampshire and Quebec; also on Hudson Bay.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1930*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 37, f. 1–5*.

171. **Potentilla glabrella** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 94. 1898.

Potentilla sericea glabrata Hook. Fl. Bor. Am. 1: 189. 1832. Not *P. glabrata* Willd. 1813.
Potentilla pennsylvanica glabrata S. Wats. Proc. Am. Acad. 8: 554. 1873.

Perennial, with a short caudex; stem generally erect and strict, rather low, 1–2 dm. high, glabrate or sparingly pubescent; stipules ovate, pectinately toothed; leaves pinnate, with 5–11 rather approximate leaflets, glabrate or glandular-pruinose, sparingly hairy on the veins and margins; leaflets obovate to oblanceolate, the lower ones smaller, very deeply dissected into oblong, acute or obtuse segments; cyme rather few-flowered; hypanthium hirsute or puberulent; bractlets oblong or lanceolate, somewhat shorter than the broadly ovate sepals, both rather strongly veined, about 5 mm. long; petals obovate, about equaling the sepals; stamens 20; pistils very numerous; styles short, fusiform and glandular below.

TYPE LOCALITY: Rocky Mountains [British America].
DISTRIBUTION: From Saskatchewan and Alberta to Wyoming.

172. **Potentilla pennsylvanica** L. Mant. 76. 1767.

Potentilla missourica Hornem.; Lindl. Bot. Reg. 17: *pl. 1412*. 1831.
? *Potentilla missourica* Schrad. Ind. Sem. Hort. Goetting. 1832; Linnaea 8: Litt. 26. 1833.
Potentilla pennsylvania communis T. & G. Fl. N. Am. 1: 438. 1840.
Potentilla pennsylvanica missourica Lehm. Stirp. Pug. 9: 41. 1851.

Perennial; stem generally erect, strict, 4–8 dm. high, more or less appressed-pubescent and tomentulose; stipules ovate in outline, 1–2 cm. long, often pectinately divided; leaves pinnate with 7–15 leaflets, grayish-tomentose and veiny beneath, short-strigose and green above, the lower long-petioled, the upper subsessile; leaflets gradually reduced downward, often somewhat decurrent on the rachis, oblong or oblanceolate in outline, divided halfway to the midrib into oblong divisions, the margins scarcely at all revolute; cyme dense, with erect branches; flowers short-pedicelled; hypanthium densely pubescent, tomentose and strigose; bractlets lanceolate, acute, equaling the ovate-triangular acute sepals, usually not prominently veiny, about 5 mm. long; petals obovate, cuneate, slightly emarginate or truncate, about 6 mm. long; stamens about 20; pistils numerous; styles thickened and glandular below.

TYPE LOCALITY: Canada.
DISTRIBUTION: On the plains, from Hudson Bay to the Yukon Territory and Colorado.
ILLUSTRATIONS: Jacq. Hort. Vind. 2: *pl. 189*; Bot. Reg. 17: *pl. 1412*; Britt. & Brown, Ill. Fl. *f. 1929*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 38, f. 1*.

(Lehm.) Rydb. comb. nov.

173. **Potentilla arachnoidea** [Douglas,] sp. nov.

Potentilla pennsylvanica conferta A. Gray, Mem. Am. Acad. II. 4: 42. 1849. Not *P. conferta* Bunge. 1830.
Potentilla pennsylvanica arachnoidea Lehm. Stirp. Pug. 9: 41. 1851.
Potentilla arachnoidea Dougl.; Lehm. Stirp. Pug. 9: 41, as a synonym. 1851.

Perennial, with a short cespitose caudex, in habit closely resembling *P. strigosa*; stems densely pubescent, with partly short, partly longer appressed hairs, 1–3 dm. high, erect, strict; basal leaves pinnate, with 9–13 leaflets; petioles densely pubescent with short pubescence and longer ascending or appressed hairs; leaflets obovate or oblanceolate, 1–3 cm. long, green and rather densely short-puberulent above, grayish-tomentose and silky on

the veins beneath, deeply cleft into lanceolate or linear divisions with revolute margins; stem-leaves similar but smaller and short-petioled; inflorescence congested; bractlets lanceolate, obtusish, 3–4 mm. long, almost equaling the lance-ovate sepals; petals broadly obovate, emarginate, 4–5 mm. long; stamens about 20; pistils numerous; styles thickened and glandular at the base.

TYPE LOCALITY: Valley of Santa Fé, New Mexico.
DISTRIBUTION: Dry plains and hills from New Mexico and Arizona to Montana.

174. **Potentilla atrovirens** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 95. 1898.

Perennial, with a stout cespitose caudex; stem stout, 2–3 dm. high, with erect branches, dark-colored, densely pilose; leaves very dark-green, densely pilose on both sides, strongly veined, pinnate, with 7–9 leaflets; these obovate to oblanceolate, coarsely dissected about halfway to the midrib into oblong segments; cyme narrow, many-flowered, with erect branches; hypanthium densely pilose, about 8 mm. in diameter when fully developed; sepals and bractlets subequal, about 5 mm. long, ovate, exceeded by the cuneate-obovate bright-yellow petals; stamens about 20, short; pistils very numerous; style short, fusiform.

TYPE LOCALITY: Douglas Creek, Wyoming.
DISTRIBUTION: Minnesota to Wyoming and Colorado.

175. **Potentilla strigosa** Pall.; Pursh, Fl. Am. Sept. 356, as synonym. 1814. — Tratt. Ros. Monog. 4: 31. 1824.

Potentilla pennsylvanica strigosa Pursh, Fl. Am. Sept. 356. 1814.
Potentilla pectinata Fisch.; Hook. Fl. Bor. Am. 1: 188, as synonym. 1833.
Potentilla absinthiifolia Dougl.; Lehm. Stirp. Pug. 9: 41. 1851.
Potentilla rubricaulis Dougl.; Lehm. Rev. Potent. 58. 1856. Not *P. rubricaulis* Lehm. 1830.

Perennial, with a short cespitose caudex; stems 1–4 dm. high, densely puberulent and with long spreading hairs, yellowish, often tinged with red; basal leaves pinnate, with 7–11 leaflets; petioles 3–7 cm. long, also puberulent and hirsute with spreading hairs; leaflets obovate or oblanceolate, 1–5 cm. long, densely silky-pubescent but yellowish-green above, densely grayish-tomentose and silky beneath, deeply cleft into lanceolate or linear, revolute divisions; stipules ovate, 1.5–2 cm. long, usually deeply cleft, acuminate; inflorescence dense; hypanthium villous, in fruit 6–7 mm. broad; bractlets lanceolate, 4–5 mm. long; sepals ovate, slightly longer, strongly ribbed; petals obovate or orbicular, about equaling the sepals; stamens 20; pistils numerous; styles thickened and glandular at the base.

TYPE LOCALITY: On the Missouri.
DISTRIBUTION: Plains from Hudson Bay to Kansas, New Mexico, and British Columbia; also northern Asia, according to Lehmann.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 38, f. 2–6.*

176. **Potentilla lasiodonta** Rydberg, sp. nov.

Perennial; stem strict, 3–4 dm. high, more or less tinged with red, densely pubescent with short spreading pubescence; basal leaves pinnate, with 11–15 leaflets; petioles 4–6 cm. long, densely short-pubescent with spreading hairs; leaflets oblong, 1–4 cm. long, green and densely short-pubescent, almost velvety above, grayish-tomentose beneath, deeply serrate with 8–21 lanceolate or linear-lanceolate teeth strongly directed forward; stem-leaves similar, but short-petioled and with less numerous leaflets; stipules lanceolate, about 2 cm. long, with linear-subulate teeth; inflorescence congested, the flowers almost sessile; hypanthium velvety-villous; bractlets lanceolate; sepals ovate; both acute, strongly ribbed, subequal in length, about 6 mm. long; petals rounded-obovate, slightly if at all exceeding the sepals; styles thickened and glandular below.

Type collected near Calgary, Alberta, in 1897, *John Macoun 16716* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Saskatchewan to South Dakota and Alberta.

DOUBTFUL AND EXCLUDED SPECIES

Potentilla dissecta Pursh, Fl. Am. Sept. 355. 1814. This is described as being glabrous, with quinate leaves and pinnatifid leaflets, and was collected near Hudson Bay. No

species that agrees with this description has been collected in later years near Hudson Bay. Dr. Watson adopted the name *P. dissecta* for *P. diversifolia* Lehm., and has been followed by most American botanists. Lehmann himself regarded them as distinct and it is evident that *P. diversifolia* does not fit Pursh's description. Neither has it been collected, so far as the author knows, in the vicinity of Hudson Bay.

Potentilla fusca Schlecht. Linnaea 13: 262. 1839. [*P. comaroides fusca* Lehm. Stirp. Pug. 9: 50. 1851.] This species should be closely related to *P. rubra*, have digitately 7-foliolate leaves, green and appressed-pilose above, white-tomentose beneath, and oblong leaflets, crenate above the middle, No species exactly answering the description has been seen. Hemsley (Biol. Cent. Am. 1: 376), refers it to *P. haematochrus*, but this does not agree with the description. If not a distinct species, it is rather a form of *P. rubra*, with leaflets more toothed than usually.

Potentilla effusa gossypina Nutt.; T. & G. Fl. N. Am. 1: 437. 1840. This is still unknown. Dr. Hooker, in London Jour. Bot. 6: 219, states that the plant collected by Geyer (*no. 637*) was labelled by Nuttall *P. gossypina*. These specimens Dr. Hooker identified as *P. arachnoidea* Douglas, which is *P. pennsylvanica arachnoidea* Lehm. There is no specimen in Nuttall's herbarium at the Academy of Natural Sciences in Philadelphia, nor in the Torrey or the Gray herbaria.

Potentilla caespitosa Raf. Aut. Bot. 165. 1840. This was described as being cespitose and diffuse, and as having ternate leaves and petals shorter than the sepals. This accords best with *P. Robbinsiana*, but that species is unknown to the Alleghany Mountains.

Potentilla nivalis Torr. Ann. Lyc. N. Y. 1: 32. 1824 = *Acomastylis turbinata* (Rydb.) Greene, Leaflets 1: 174. 1906 (*Geum turbinatum* Rydb. Bull. Torrey Club 24: 91. 1897).

Potentilla gracilipes Piper, Bull. Torrey Club 27: 392. 1900 = *Acomastylis gracilipes* (Piper) Greene, Leaflets 1: 174. 1906, a species closely related to the last, if not identical.

Potentilla ovalis Lehm. Delect. Sem. Hort. Hamb. 1849: 9. 1849 = *Fragaria ovalis* (Lehm.) Rydb.

Species of nearly all the genera of the tribe POTENTILLEAE have at some time or other been referred to *Potentilla*. For further *Potentilla* synonyms, see these genera.

21. ARGENTINA Lam. Fl. Fr. 3: 118. 1778.

Dactylophyllum Spenn. Fl. Frib. 1084, in part. 1829.

Perennial herbs, with slender prostrate stolons. Leaves interruptedly pinnate, with many leaflets. Flowers solitary in the axils of small leaves or scales on the stolons. Hypanthium almost flat. Bractlets, sepals, and petals normally 5, often, however, more. Petals yellow, broadly elliptic or almost orbicular, not at all unguiculate, obtuse, scarcely emarginate. Stamens 20–25, in three series, inserted closely around the base of the receptacle as in *Potentilla*. Filaments filiform, rather short. Anthers slightly didymous, dehiscent by a longitudinal slit. Receptacle hemispheric, bearing very numerous pistils. Styles filiform, lateral, attached almost at the middle of the ovaries, scarcely deciduous. Mature achenes with thick pericarp. Seeds ascending and amphitropous.

Type species, *Potentilla Anserina* L.

Achenes corky with a deep groove; stems, petioles, and rachis of the leaves densely pubescent, with at first ascending and later spreading hairs.
- Leaves silvery on both sides. 1. *A. argentea.*
- Leaves green and glabrate above. 2. *A. Anserina.*

Achenes not corky, without a groove; stem, petioles, and the rachis of the leaves glabrous or slightly appressed-hairy and glabrate.
- Petals usually over 1 cm. long, rounded-obovate.
  - Bractlets lanceolate, longer than the sepals; leaves usually 3–4 dm. long. 3. *A. pacifica.*
  - Bractlets elliptic or oblong, shorter than the sepals; leaves 1–2 dm. long. 4. *A. occidentalis.*
- Petals 6–8 mm., rarely 1 cm. long, usually elliptic-obovate.
  - Leaflets elliptic-obovate to oblanceolate, many-toothed, silky as well as tomentose beneath; bractlets nearly equaling the sepals or even exceeding them.
    - Upper leaflets rounded at the apex, with more than 20 linear-lanceolate teeth; petals elliptic, about 6 mm. long; pistils few. 5. *A. Babcockiana.*
    - Upper leaflets acute or obtuse at the apex, with less than 20 triangular-lanceolate or ovate-lanceolate teeth.

Hypanthium acute at the base; bractlets linear-lanceolate; rachis of the leaves appressed-pubescent. (Western species.) 6. *A. subarctica.*
Hypanthium obtuse at the base; bractlets broadly lanceolate; rachis of the leaves glabrate or nearly so. (Eastern species.) 7. *A. litoralis.*
Leaflets broadly obovate, 0.5–1 cm. long, few-toothed, usually tomentulose beneath but silky only on the veins; bractlets linear or lanceolate, much shorter than the sepals. 8. *A. Egedii.*

1. **Argentina argentea** Rydb. Bull. Torrey Club **33**: 143. 1906.

Argentina anserina concolor Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 160, mainly. 1898. Not *Potentilla anserina concolor* Seringe. 1825.

Basal leaves 1–2 dm. long, pinnate, with 11–25 larger leaflets and smaller ones interposed; rachis with long white, at first ascending, soon spreading hairs; larger leaflets 1–3 cm. long, obovate, rounded at the apex, serrate with 7–20, ovate or ovate-lanceolate teeth, white-silky on both sides or a little greener above, the smaller ones less than 1 cm. long and few-toothed; stolons 1–5 dm. long, white-silky with ascending or spreading hairs; pedicels 2–7 cm. long, white-silky; hypanthium and calyx white-silky, the former 5–8 mm. wide; bractlets oblong or elliptic, 4–6 mm. long, usually entire, about equaling the ovate or ovate-lanceolate sepals; petals obovate or broadly oval, 6–9 mm. long; achenes 2 mm. long, brown, obliquely obovate, corky, with a deep groove.

TYPE LOCALITY: Not given in the original, but the type in Columbia University herbarium was collected on Wood Mountain, Assiniboia [Saskatchewan], *Macoun 1047.*

DISTRIBUTION: Wet places in the interior, from Fort Simpson on the Mackenzie River to South Dakota, New Mexico, Arizona, Oregon, and British Columbia.

2. **Argentina Anserina** (L.) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 159. 1898.

Potentilla Anserina L. Sp. Pl. 495. 1753.
Potentilla Argentina Huds. Fl. Angl. 195. 1762.
Argentina vulgaris Lam. Fl. Fr. **3**: 119. 1778.
Dactylophyllum Anserina Spenn. Fl. Frib. 1084. 1829.
Fragaria Anserina Crantz, Stirp. Austr. 2: 9. 1763.

Main stem almost none, from a cluster of fascicled roots and producing numerous runners 3–6 dm. long; leaves 1–2 dm. long, interruptedly pinnate, with 9–31 larger leaflets and smaller interposed, in the typical form spreading or flat on the ground, slightly silky and green above, white-silky and tomentose beneath; larger leaflets 1–4 cm. long, oblong or oblanceolate, usually acute, deeply and sharply serrate with linear-lanceolate teeth in the European and eastern American form, more obovate, rounded at the apex and with broader ovate or triangular teeth in the Rocky Mountain form; flowers 1–2 cm. in diameter, on pedicels 3–10 cm. long; bractlets simple and lanceolate, or often broader, ovate-lanceolate, toothed or divided, generally a little longer than the broadly ovate sepals; petals oval, 7–10 mm. long; achenes numerous, corky, very thick, grooved at the upper end.

TYPE LOCALITY: Europe.

DISTRIBUTION: Native of Europe and Asia; probably only naturalized in eastern America, from Canada to Wisconsin, Iowa, and New York, but native from Manitoba to New Mexico, southern California, and Alaska.

ILLUSTRATIONS: Morison, Hist. 1^2: *pl. 20, f. 4;* Sturm, Deuts. Fl. **4**: *pl. 7;* Engl. Bot. *pl. 861;* Fl. Dan. *pl. 544;* Dietr. Fl. Bor. **2**: *pl. 142;* Hayne, Arzn. Gew. **4**: *pl. 31;* Thome, Fl. Deuts. **3**: *pl. 404;* Sv. Bot. *pl. 152;* Curt. Fl. Lond. **3**: *pl. 31* (*203*); Schrank, Fl. Monac. *pl. 386;* Britt. & Brown, Ill. Fl. *f. 1934;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 98.*

3. **Argentina pacifica** (Howell) Rydberg.

Potentilla Anserina grandis T. & G. Fl. N. Am. **1**: 444. 1840.
Potentilla pacifica Howell, Fl. NW. Am. **1**: 179. 1898.
Argentina Anserina grandis Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 161. 1898.

Basal leaves 3–4 dm. long, mostly erect; rachis mostly with appressed pubescence or almost glabrous; larger leaflets 15–25, obovate or oval, the upper 4–6 cm. long, coarsely serrate, obtuse, glabrous or nearly so above, white-silky and tomentose beneath; stolons 1–8 dm. long, usually glabrous; peduncles 1–2 dm. long, slightly silky; hypanthium silky, nearly 1 cm. wide; bractlets lanceolate, 6–8 mm. long; sepals ovate, 5–6 mm. long; petals rounded-obovate or nearly orbicular, 10–12 mm. long; carpels about 2 mm. long, dark-brown, rounded on the back, neither grooved nor corky.

TYPE LOCALITY: Oregon.

DISTRIBUTION: Alaska to California, near the coast.

4. **Argentina occidentalis** Rydberg, sp. nov.

Potentilla pacifica Howell, Fl. NW. Am. 1 : 179, in part. 1898.

Basal leaves 1–2 dm. long, usually spreading; rachis appressed-pubescent or glabrous; larger leaflets 11–19, obovate, rounded at the apex, with broad teeth, glabrous or nearly so above, white-tomentose and silky beneath; the upper 1.5–4 cm. long; stolons 1–6 dm. long, usually glabrous; peduncles 1–1.5 dm. long, sparingly silky; hypanthium sparingly silky or nearly glabrous, about 7 mm. wide; bractlets elliptic or oblong, 4–5 mm. long; sepals about 6 mm. long, ovate; petals suborbicular, 10–12 mm. long; achenes 2 mm. long, brown, rounded on the back, neither grooved nor corky.

Type collected at Suisun, Solano County, California, in 1903, *C. F. Baker 3217* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Alaska to California, near the coast, mostly in salt marshes.

5. **Argentina Babcockiana** Rydberg, sp. nov.

Basal leaves 6–15 cm. long, dark-green and glabrous above, white-silky beneath; rachis appressed-silky; larger leaflets 15–21, oblanceolate, rounded at the apex, sharply serrate with narrowly lanceolate teeth directed forward; the upper 1.5–2.5 cm. long with over 20 teeth; stolons 1–9 dm. long, sparingly appressed-silky or glabrous; peduncles 4–7 cm. long, slender, appressed-silky; hypanthium acute at the base, 4 mm. wide; bractlets lanceolate, 5–6 mm. long, equaling or slightly exceeding the ovate-lanceolate sepals; petals elliptic, 6–7 mm. long; pistils few; achenes neither grooved nor corky.

Type collected at Westminster Park, New York, in 1900, *Miss E. Babcock* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Type locality and shores of Oneida Lake.

6. **Argentina litoralis** Rydberg, sp. nov.

Basal leaves 1–3 dm. long, ascending, dark-green and glabrous above, white-tomentose and silky beneath; rachis glabrous or nearly so; larger leaflets oblanceolate, coarsely serrate with triangular-lanceolate teeth, usually acute; the upper leaflet 2–3 cm. long; stolons slender, 1–6 dm. long, glabrous or nearly so; peduncles 5–20 cm. long, glabrous or sparingly silky; hypanthium 6–7 mm. wide, silky, rounded at the base; bractlets and sepals subequal, lanceolate or ovate-lanceolate, 5–6 mm. long; petals elliptic to oval, 8–10 mm. long; achenes 2 mm. long, brown, rounded on the back, neither corky nor grooved.

Type collected near the sea at Yarmouth, Nova Scotia, in 1901, *Howe & Lang 1* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Along the coast and in salt marshes, from Labrador, Newfoundland, and Quebec to Long Island.

7. **Argentina subarctica** Rydberg, sp. nov.

Basal leaves 7–15 cm. long, ascending; rachis silky, with appressed or ascending hairs; larger leaflets 15–19, dark-green and sparingly silky above, densely white-silky and tomentose beneath, deeply serrate with narrowly lanceolate teeth; the upper leaflet 1.5–2 cm. long; stolons 1–4 dm. long, slender, appressed-silky; peduncles 5–10 cm. long; hypanthium about 5 mm. wide, silky and tomentulose, acute at the base; bractlets linear-lanceolate, 3–6 mm. long; sepals ovate, 5–6 mm. long; petals oval or suborbicular, about 8 mm. long; achenes neither grooved nor corky.

Type collected on Yukon River, near Palisades, Alaska, in 1903, *Arthur Hollick* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Alaska and Yukon District; apparently also in the mountains of Idaho and Montana.

8. **Argentina Egedii** (Wormsk.) Rydb. Mem. Dep. Bot. Columbia Univ. 2 : 158. 1898.

Potentilla Egedii Wormsk. Fl. Dan. 9^{27} : 5. 1818.
Potentilla Anserina groenlandica Tratt. Ros. Monog. 4 : 13. 1824.
Potentilla Anserina Egedii T. & G. Fl. N. Am. 1 : 444. 1840.
? *Potentilla Anserina concolor* Lange, Consp. Fl. Groenl. 234. 1887. Not *P. Anserina concolor* Seringe. 1825.

Perennial, with a fascicled root and producing long runners, much smaller in size than the other species; leaves 3–5 cm. long, pinnate, with 5–15 leaflets, nearly or perfectly gla-

brous above, sometimes white-tomentulose beneath, but never silky except on the veins; leaflets broadly obovate or nearly orbicular, 0.5–1 cm. long, coarsely crenate with rounded teeth; stolons 1–6 dm. long, glabrous; peduncles 2–5 cm. long, glabrous; bractlets linear or lanceolate, about 2 mm. long; sepals ovate, about 4 mm. long; petals usually broadly oval, 8–12 mm. long; achenes large, 2.5 mm. long, plump, not grooved.

TYPE LOCALITY: Holsteinborg, Greenland.

DISTRIBUTION: Arctic America, on the coast, extending south to Labrador; also in Iceland, Norway, and Spitzbergen.

ILLUSTRATIONS: Fl. Dan. *pl. 1578;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 97, f. 6–9.*

22. COMARUM L. Sp. Pl. 502. 1753.

Pancovia Heist.; Adans. Fam. Pl. **2**: 294. 1763.
Argentina Lam. Fl. Fr. **3**: 118, in part. 1778.

Aquatic perennials, with long creeping rootstocks and pinnate leaves. Inflorescence cymose. Hypanthium almost flat or slightly saucer-shaped, enlarging in fruit, more or less tinged with red. Bractlets, sepals, and petals 5. Petals red, ovate, acuminate. Stamens 20–25, inserted near the base of the receptacle. Filaments filiform, but rather stout. Anthers flat, cordate at the base, attached by the back, and opening by longitudinal marginal slits. Receptacle hemispheric, enlarging in fruit and becoming ellipsoid or hemispheric and spongy. Pistils numerous. Styles lateral, filiform. Seeds amphitropous.

Type species, *Comarum palustre* L.

1. Comarum palustre L. Sp. Pl. 502. 1753.

Fragaria palustris Crantz, Stirp. Austr. **2**: 11. 1766.
Potentilla palustris Scop. Fl. Carn. ed. 2. 1: 359. 1772.
Argentina rubra Lam. Fl. Fr. **3**: 120. 1778.
Potentilla Comarum Nestler, Monog. Potent. 36. 1814.
Comarum digitatum Raf. Fl. Tell. **2**: 55. 1837.
Comarum angustifolium parvifolium Raf. Aut. Bot. 170. 1840.
Comarum angustifolium Raf. Fl. Tell. **2**: 56. 1837.
Comarum palustre villosum Pers. Syn. **2**: 58. 1806.
Comarum tomentosum Raf. Aut. Bot. 170. 1840.
Potentilla palustris villosa Lehm. Stirp. Pug. **9**: 44. 1851.

Perennial, with a creeping rootstock; stem ascending, 2–5 dm. high, more or less hirsute with short spreading hairs, somewhat glandular on the upper portion (in the variety *villosum* densely villous and with copious glands), subglabrous on the lower portion, somewhat striate, brownish or reddish in color, shining; lower stipules brown, scarious and wholly adnate to the petioles; the upper with free tips, lanceolate or ovate, foliaceous; lower leaves with petioles 3–10 cm. long, the upper subsessile, all pinnate, with 5–7 more or less approximate leaflets, green above, paler and purple-veined beneath, sparingly hairy, in age glabrate, or in the variety *villosum* densely velvety on both sides when young; leaflets in the typical form elliptic or oval, mostly acute at both ends, with broad ovate teeth, in the more common American form (*C. angustifolium* Raf.) linear-oblong, 5–8 cm. long and only 1–2 cm. wide, obtuse or rounded at the apex and with lanceolate teeth; cyme leafy, few-flowered; hypanthium in flower 7–8 mm., in fruit about 15 mm. in diameter, short-pilose and glandular-pubescent; bractlets narrowly lanceolate, scarcely half as long as the broadly ovate to lanceolate, acuminate sepals, which are about 1 cm. long in flower and 1.5 cm. in fruit; petals, stamens, styles, and the inner side of the sepals dark-purple; petals spatulate or ovate, acuminate or acute, scarcely half as long as the sepals.

TYPE LOCALITY: Europe.

DISTRIBUTION: Northern and subalpine Europe and Asia; also subarctic and arctic America, from Greenland and Labrador to Alaska; the narrow-leaved form extending south to New England, Minnesota, Wyoming, and California.

ILLUSTRATIONS: Fl. Dan. *pl. 636;* Fl. Deuts. ed. 5, *pl. 2585;* — the narrow-leaved form: Britt. & Brown, Ill. Fl. *f. 1937;* Mem. Dep. Bot. Columbia Univ. **2**: *pl. 99;* — the hairy form: Pluk. Phyt. **2**: *pl. 212, f. 2.*

23. DUCHESNEA J. E. Smith, in Rees, Cycl. 15: under Fragaria. 1810.

Perennial, with a short rootstock and long prostrate stolons. Leaves ternate, with short-stalked leaflets. Flowers solitary from the axils of leaves on the runners. Hypan-

thium almost flat. Bractlets, sepals, and petals normally 5. Petals yellow, oblong-cuneate, truncate or rarely slightly emarginate; sepals ovate, acuminate, about equaling the petals; bractlets large, 3–5-toothed, generally exceeding both petals and sepals. Stamens 20–25, rather short, closely surrounding the receptacle; anthers opening by a longitudinal slit. Receptacle hemispheric, bearing numerous pistils, in fruit becoming fleshy and red, but insipid in taste. Styles filiform, attached to the middle of the ovaries, scarcely deciduous. Seeds ascending and amphitropous.

Type species, *Fragaria indica* Andr.

1. **Duchesnea indica** (Andr.) Focke, in E. & P. Nat. Pfl. 3^3: 33. 1888. $n=42$

Fragaria indica Andr. Bot. Rep. *pl. 479.* 1807.
Duchesnea fragiformis J. E. Smith, in Rees, Cycl. **15**: under Fragaria. 1810.
Duchesnea fragarioides (DC. Prodr. **2**: 571, as synonym. 1825) G. Don, Gen. Hist. **2**: 549. 1832.
Potentilla Durandii T. & G. Fl. N. Am. **1**: 444. 1840.

Stems coarsely strigose; leaves not very thick, glabrate above, silky-strigose beneath; leaflets 2–4 cm. long, rhombic-obovate, coarsely crenate, generally more or less petioled; flowers 1.5–2 cm. in diameter; fruit about 1 cm. in diameter; achenes superficial.

TYPE LOCALITY: Northeastern part of Bengal, India.
DISTRIBUTION: Native of Asia and naturalized in most tropical and warmer temperate regions; in North America naturalized from New Jersey and Pennsylvania to Missouri and southward; also in California, Bermuda, and Jamaica.
ILLUSTRATIONS: Bot. Rep. *pl. 479;* Bot. Reg. 1: *pl. 61;* Wight, Ic. Pl. Ind. Or. **3**: *pl. 989;* Schrank, Hort. Monac. *pl. 50;* Britt. & Brown, Ill. Fl. *f. 1912.*

24. **FRAGARIA** L. Sp. Pl. 494. 1753.

Dactylophyllum Spenn. Fl. Frib. 1084, in part. 1829.

Perennial acaulescent herbs, with scaly rootstock, and producing runners which root and form new plants. Leaves (in all ours) ternate, basal. Hypanthium almost flat. Bractlets, sepals, and petals normally 5. Petals white, or in one species reddish, broadly obovate, elliptic, or almost orbicular, obtuse, never emarginate. Stamens about 20, in three series as in *Potentilla*, sometimes abortive, closely surrounding the base of the receptacle; filaments short; anthers dehiscent by a longitudinal slit. Receptacle hemispheric or conic, bearing very numerous pistils, in fruit becoming enlarged, very juicy, and delicious in taste. Styles filiform but rather short, attached near the middle of the ovaries, scarcely deciduous. Seeds ascending and amphitropous.

Type species, *Fragaria vesca* L.

Leaves thick and coriaceous, silky and tomentulose beneath and strongly reticulate. — 1. *F. chiloensis.*
Leaves generally thin, rarely tomentulose beneath, if thick not strongly reticulate.
  Pubescence of scape and petioles divaricate, *i. e.*, generally spreading at right angles or somewhat reflexed (scanty and less spreading in no. 9).
    Leaves densely silky beneath; fruit slightly pitted.
      Flowers over 2 cm. in diameter. — 2. *F. crinita.*
      Flowers 1–1.5 cm. in diameter.
        Leaflets broadly rounded or rhombic-ovate. — 3. *F. californica.*
        Leaflets oblong-obovate or cuneate. — 4. *F. mexicana.*
    Leaves slightly silky beneath, in age glabrate.
      Leaflets subsessile; achenes superficial, except perhaps in *F. australis.*
        Flowers pinkish, nodding from the beginning. — 5. *F. Helleri.*
        Flowers white, erect or spreading, nodding only in fruit.
          Calyx in fruit spreading or ascending; scape generally with long divaricate hairs and a leafly bract.
            Flowers 1.5–2 cm. in diameter; fruit inclined to be ovoid or subconic in fruit; leaflets rhombic-obovate. — 6. *F. bracteata.*
            Flowers less than 1.5 cm. in diameter; fruit hemispheric; leaflets obovate, rounded at the apex.
              Calyx and hypanthium densely strigose; sepals in flower 3 mm. long. — 7. *F. insularis.*
              Calyx sparingly hairy; sepals in flower about 5 mm. long. — 15. *F. australis.*
          Calyx in fruit reflexed; leaflets rhombic-obovate, acute.

Fruit hemispheric; scape and petioles decidedly pubescent with spreading hairs. 8. *F. vesca.*
Fruit ovoid or subconic, usually with a distinct neck; scape and petioles sparingly hairy, hairs more ascending or appressed. 9. *F. americana.*
Leaflets usually petiolulate; achenes set in usually deep pits (in *F. sibbaldifolia* unknown).
Fruit subglobose.
Plant more or less glaucous; petals usually orbicular, except in *F. Suksdorfii*, and twice as long as the sepals.
Sepals and bractlets elliptic. 10. *F. truncata.*
Sepals and bractlets lanceolate.
Sepals linear-lanceolate; leaflets cuneate, somewhat coriaceous, sharply toothed at the apex. 11. *F. cuneifolia.*
Sepals broadly lanceolate.
Leaflets at least twice as long as broad, with small, rounded-ovate teeth. 12. *F. Suksdorfii.*
Leaflets broadly obovate or broadly cuneate, only a little longer than broad, with coarse acute teeth. 13. *F. platypetala.*
Plant not glaucous; petals elliptic, generally exceeding the sepals by one half.
Leaflets 3–7-toothed at the apex only, generally only the terminal one petiolulate. 14. *F. sibbaldifolia.*
Leaflets several-toothed all around or at least the upper half.
Leaflets 1–4 cm. long, subsessile. 15. *F. australis.*
Leaflets 3–10 cm. long, distinctly stalked.
Petals 5–10 mm. long; sepals lanceolate; achenes set in deep pits.
Pedicels with appressed hairs. 16. *F. virginiana.*
Pedicels with spreading hairs. 17. *F. Grayana.*
Petals usually over 10 mm. long; sepals ovate or broadly lanceolate; achenes set in shallow pits; leaves firm. 18. *F. grandiflora.*
Fruit oblong-conic. 19. *F. canadensis.*
Pubescence of the scape and petioles appressed or ascending; achenes in pits.
Plants not glaucous.
Leaflets usually over 3 cm. long, very veiny beneath; runners many. 20. *F. prolifica.*
Leaflets usually 1–3 cm. long, not very veiny; runners few.
Scape and petioles densely grayish-strigose. (Western.) 21. *F. pumila.*
Scape and petioles slightly hairy, glabrate. (Eastern.)
Leaflets sessile; petals about 5 mm. long. 22. *F. multicipita.*
Leaflets short-stalked; petals 7–10 mm. long. 23. *F. Terrae-Novae.*
Plants more or less glaucous.
Leaves rather thin.
Leaflets obovate; scape several-flowered. 24. *F. glauca.*
Leaflets oblong-cuneate; scape 1–4-flowered. 25. *F. pauciflora.*
Leaves rather thick, firm; leaflets oblong-cuneate.
Leaflets subsessile; bractlets much smaller than the sepals. 26. *F. ovalis.*
Leaflets distinctly petiolulate; bractlets equaling or exceeding the sepals. 27. *F. yukonensis.*

1. **Fragaria chiloensis** (L.) Duchesne, Hist. Nat. Frais. 165. 1766.

Fragaria vesca chiloensis L. Sp. Pl. 495. 1753.
Fragaria chilensis Molina, Sagg. Chile 134. 1784.
Fragaria grossa Salisb. Prodr. 363. 1796.
Fragaria sericea Dougl.; Hook. Fl. Bor. Am. **1**: 185, as a synonym. 1832.
Fragaria bonariensis Pers. Syn. Pl. **2**: 53. 1806.
Fragaria chilensis β Hook. Fl. Bor. Am. 1: 185. 1832.
Fragaria chilensis Scouleri S. Wats. Bibl. Ind. 282. 1878.
Fragaria chiloensis Scouleri Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 170. 1898.

Rootstock short and thick, crowned with rather numerous leaves and large scarious brown stipules 1–2 cm. long; petioles 2–20 cm. long, stout, brownish, rather densely silky, with ascending, in age spreading, hairs; leaflets very thick and coriaceous, brownish when mature, slightly silky above when young, but perfectly glabrous in age, strongly nerved and reticulate, densely silky-strigose and finely tomentulose beneath; the terminal one evidently petiolulate, broadly obovate, truncate, subobcordate or sometimes rounded at the apex and crenate above the middle, with the terminal tooth generally much smaller, 2–5 cm. long; the lateral ones similar but somewhat smaller, short-petiolulate or subsessile and very oblique at the base; runners strong, but usually short; scape always densely silky-strigose, in the common form usually low, less than 1 dm. high, branched near the base and not leafy-bracted, in the var. *Scouleri* 1–3 dm. long and overtopping the leaves; bracts

more or less scarious and pinkish; flowers usually 2–3.5 cm. in diameter; hypanthium, sepals, and bractlets silky-strigose; bractlets and sepals oblong or lanceolate, acute or mucronate; petals broadly obovate, exceeding the sepals by about a half; fruit hemispheric, 1.5–2 cm. in diameter, quite hairy; achenes nearly superficial, set in shallow pits.

TYPE LOCALITY: Conception, Chile.
DISTRIBUTION: From Alaska to California, and in South America from Peru to Patagonia; also on the Sandwich Islands, and cultivated in many parts of the world.
ILLUSTRATIONS: Rev. Hortic. IV. 2: *pl. 2;* Decaisne, Jard. Fr. Mus. Frag. 52, *pl.;* Duham. Nat. Erdb. *pl. 3.*

2. **Fragaria crinita** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 171. 1898.

Rootstock short and thick, but not so much so as in *F. chiloensis;* leaves firm but much thinner than in that species, less veiny beneath and not reticulate, silky above when young, in age glabrate, densely silky and slightly tomentulose beneath; petioles slender, 2–10 cm. long, covered with spreading or reflexed, long white silky hairs; leaflets all subsessile, rhombic-obovate, the lateral oblique at the base, more sharply toothed than in *F. chiloensis*, and the terminal tooth seldom much smaller than the others; runners slender and long; scape seldom over 1 dm. high, with spreading long silky hairs, slender, seldom with leafy bracts; flowers 2–3 cm. in diameter; hypanthium silky; bractlets and sepals silky, narrowly lanceolate, acuminate; petals obovate, exceeding the sepals by about a third; fruit hemispheric, nearly 1 cm. in diameter, somewhat pubescent; achenes in shallow pits.

TYPE LOCALITY: Washington.
DISTRIBUTION: British Columbia to California.

= F. vesca L. ssp. californica (C.+S.) ined acc crossing data

3. **Fragaria californica** Cham. & Schlecht. Linnaea 2: 20. 1827. n=7

Fragaria vesca γ T. & G. Fl. N. Am. 1: 448, in part. 1840.
? *Fragaria lucida* Vilmorin; Gay, Ann. Sci. Nat. IV. 8: 201. 1857.
Fragaria californica franciscana Rydb. Mem. Dep. Bot. Columbia Univ. 2: 173. 1898.

Rootstock short but not very thick, crowned by several rather thin leaves; stipules ovate-lanceolate, brown; petioles slender, 3–10 cm. long, sparingly covered with long, white, silky, spreading or reflexed hairs; terminal leaflet 2–5 cm. long, rounded-obovate, obtuse, coarsely serrate, subsessile, glabrate above, appressed-silky beneath; lateral ones similar but very oblique at the base; runners long and slender; scapes usually several, 2–5-flowered, slender, silky with spreading or reflexed hairs, usually less than 1 dm. high and seldom leafy-bracteate; flowers 1–1.5 cm. in diameter; hypanthium silky; bractlets usually somewhat shorter than the sepals, both silky, lanceolate, acuminate or acute; petals obovate, very little exceeding the sepals; fruit hemispheric, 1–1.5 cm. in diameter; achenes in shallow pits.

TYPE LOCALITY: Not given, but evidently somewhere in California, probably near San Francisco.
DISTRIBUTION: California to Lower California and New Mexico.

F. vesca L. ssp mexicana (Schlecht.) comb. nov. acc. crossing data

4. **Fragaria mexicana** Schlecht. Linnaea 13: 265. 1839. n=7

Rootstock very short, crowned by a few leaves and a solitary scape; leaves rather thin, soon glabrate above, silky beneath; petioles about 5 dm. long, slender, silky with spreading or reflexed hairs; leaflets oblong-obovate or cuneate, coarsely serrate, 2–3 cm. long, the lateral ones oblique at the base, but less so than in *F. californica;* runners long and slender; scape generally about 5 cm. high, seldom over 10 cm. high, with spreading silky hairs, slender and 1–4-flowered; flowers seldom over 1 cm. in diameter; sepals and bractlets lanceolate and silky, as also the hypanthium; petals obovate, a little exceeding the sepals; fruit subhemispheric, 0.75–1 cm. in diameter; achenes superficial.

TYPE LOCALITY: Jalapa, Mexico.
DISTRIBUTION: Central Mexico, also apparently in Lower California.

= F. vesca var. rosea Rostr.

5. **Fragaria Helleri** Holz. Bot. Gaz. 21: 36. 1896. n=7

Fragaria sp. Holz. Contr. U. S. Nat. Herb. 3: 222. 1895.

Rootstock rather slender; leaves very thin, glabrate above, finely silky beneath; petioles, as well as scapes, very slender, sparingly silky, or glabrate in age, 5–10 cm. long;

leaflets rounded-obovate or rhombic-obovate, coarsely serrate, the lateral ones very oblique; runners very slender; scape 1.5–2 dm. high, very slender, often with a foliaceous unifoliolate bract; flowers rather large, 1.5–2 cm. in diameter, on nodding pedicels; bractlets lanceolate, shorter than the ovate sepals, both acute; petals nearly orbicular, light rose-colored, almost twice as long as the sepals; mature fruit unknown, but achenes in the unripe ones superficial.

TYPE LOCALITY: [Pine Creek, near Farmington Landing, Latah County,] Idaho.
DISTRIBUTION: Type locality and Olga, Washington.

= F. vesca L. ssp. bracteata (Heller) comb. nov.

6. **Fragaria bracteata** Heller, Bull. Torrey Club 25: 194. 1896.

Fragaria vesca Hook. Fl. Bor. Am. 1: 184, in part. 1832.
Fragaria vesca γ T. & G. Fl. N. Am. 1: 448, in part. 1840.
Fragaria californica Howell, Fl. NW. Am. 1: 174, in part. 1898.
Fragaria retrorsa Greene, Ottawa Nat. 18: 216. 1905.

Rootstock very short and rather thick; leaves very thin, somewhat glaucous, silky when young, glabrate in age, especially on the upper surface; petioles slender, 3–10 cm. long, silky with long white spreading or reflexed hairs; leaflets broadly rhombic-obovate, acute, coarsely toothed, 2–5 cm. long, the lateral ones very oblique; runners very slender, rather few; scape often over 1 dm. high, often exceeding the leaves, silky with long spreading or reflexed hairs, often with a unifoliolate leafy bract, 2–8-flowered; flowers 1.5–2 cm. in diameter; sepals and bracts lanceolate, acute; petals rounded-obovate, often nearly twice the length of the sepals; fruit somewhat elongate, ovoid or semi-ellipsoid, red, about 7.5 mm. in diameter and 10 mm. long; achenes superficial.

TYPE LOCALITY: Santa Fé Creek, nine miles east of Santa Fé, New Mexico.
DISTRIBUTION: From British Columbia to California, New Mexico, and Montana.
ILLUSTRATION: Bull. Torrey Club 25: *pl. 339*.

7. **Fragaria insularis** Rydberg, sp. nov.

Fragaria vesca Lowe, Man. Fl. Madeira 1: 246, in part. 1868.

Rootstock very thick and short; leaves rather thin, sparingly silky on both sides, more densely so on the veins beneath, dark-green above, glaucous beneath; petioles 2–7 cm. long, silky with spreading hairs; leaflets rounded-obovate, 2–4 cm. long, coarsely serrate with ovate teeth, rounded at the apex, subsessile; scape low, about equaling the leaves or less, silky with spreading hairs, often with a leafy bract; pedicels silky-strigose; flowers 1 cm. or less in diameter; hypanthium densely silky; bractlets linear-lanceolate, 2–3 mm. long; sepals lance-ovate, acuminate, about 3 mm. long in flower, in fruit spreading; petals white, obovate, a little exceeding the sepals; fruit red, subglobose, about 8 mm. in diameter; achenes superficial.

Type collected at Cinchona, Jamaica, at an altitude of 1500 m., in 1906, *Wm. Harris 9216* (in herb. N. Y. Bot. Gard.).
DISTRIBUTION: On banks and in pastures, Jamaica, perhaps introduced; the same also native of the Azores, Madeira, etc.

8. **Fragaria vesca** L. Sp. Pl. 494. 1753.

Potentilla vesca Scop. Fl. Carn. ed. 2. 1: 363. 1772.
Fragaria vulgaris Ehrh. Beitr. 7: 21. 1792.
Fragaria vulgaris alba Ehrh. Beitr. 7: 22. 1792.
Fragaria vesca f. *albicarpa* Britt. Bull. Torrey Club 6: 323. 1879.
Fragaria vesca alba Rydb. Mem. Dep. Bot. Columbia Univ. 2: 174. 1898.
Fragaria americana alba Clute, Fl. Upper Susquehanna 35. 1898.

Rootstock short and thick; leaves rather thin, short, silky when young, but glabrate on both sides in age, somewhat glaucous beneath; petioles somewhat stouter than in the related species, often 1–2 dm. long, silky with spreading hairs; leaflets rhombic-obovate, mostly acutish, 2–10 cm. long, coarsely serrate, sometimes short-petiolulate, especially the terminal one; runners long and slender; scape often as high as the leaves, often with a foliaceous bract similar to the leaflets, several-flowered, silky with spreading hairs, the pedicels, however, appressed-hairy; flowers 1–1.5 cm. in diameter; sepals and bractlets from ovate to lanceolate, acute, slightly silky, about 6 mm. long; fruit usually subspheric, 1–1.5 cm. in diameter, red or whitish; achenes superficial.

TYPE LOCALITY: Europe.
DISTRIBUTION: Native of Europe, sometimes cultivated and occasionally escaped in the eastern United States and Canada; origin of the "Alpine Strawberries"; apparently native in the mountain regions of New England and Canada. The white-fruited form is native and grows in open woods and on road-sides from northern New York to Connecticut, Kentucky, and eastern Ohio.
ILLUSTRATIONS: Lam. Tab. Encyc. *pl. 442;* Sturm, Fl. Deuts. 2: *pl. 2;* Schrank, Fl. Monac. *pl. 39;* Dietr. Fl. Bor. 5: *pl. 318;* Sv. Bot. *pl. 16;* Engl. Bot. *pl. 1524;* Baxter, Brit. Bot. *pl. 242;* Fl. Dan. *pl. 1235;* Hayne, Arzn. Gew. 4: *pl. 26;* Decaisne, Jard. Fruit. *pl. 1;* Thome, Fl. Deuts. 3: *pl. 408;* Britt. & Brown, Ill. Fl. *f. 1910.*

9. **Fragaria americana** (Porter) Britton, Bull. Torrey Club 19: 222. 1892.

Fragaria vesca Pursh, Fl. Am. Sept. 357, mainly. 1814. Not *F. vesca* L.
Fragaria canadensis Eat. Man. ed. 7. 306, in part. 1836. Not *F. canadensis* Michx. 1803.
Fragaria vesca β T. & G. Fl. N. Am. 1: 448. 1840.
Fragaria vesca americana Porter, Bull. Torrey Club 17: 15. 1890.

Rootstock short but not thick; leaves very thin, very soon glabrate on both sides; petioles slender, 5–10 cm. long, sparingly silky, with less spreading hairs than in the related species, or glabrate; leaflets 3–8 cm. long, rhombic-obovate, mostly acute, sharply and deeply serrate, the lateral ones oblique at the base; runners very slender and long; scape slender, seldom over 1.5 dm. long, sparingly silky with slightly spreading or sometimes divaricate hairs, seldom much exceeding the leaves, very rarely leafy-bracteate; flowers similar to those of *F. vesca;* fruit elongate-ovoid, 5–7.5 mm. in diameter and 1–1.5. cm. long, red; achenes superficial.

TYPE LOCALITY: Northern United States.
DISTRIBUTION: Woods, from Newfoundland to Manitoba, New Mexico, and Virginia.
ILLUSTRATION: Britton & Brown, Ill. Fl. *f. 1911.*

10. **Fragaria truncata** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 177. 1898.

Rootstock short and thick; leaves rather few, thin, silky on both sides, but in age glabrate above; stipules oblong or ovate, brown, scarious; petioles slender, 2–8 cm. long, sparingly silky with long spreading hairs; leaflets petiolulate, 1.5–4 cm. long, rounded-obovate, round-crenate above the middle, with the middle tooth smaller, the lateral leaflets very little oblique; scape slender, few-flowered, seldom exceeding 1 dm. in height, and rarely leafy-bracteate, sparingly silky with spreading hairs; flowers 1–2 cm. in diameter; hypanthium, bractlets, and sepals sparingly and finely silky; bractlets and sepals elliptic or ovate, obtuse or acutish; petals obovate, exceeding the sepals by about a third; achenes in pits.

TYPE LOCALITY: Nevada County, California.
DISTRIBUTION: Sierra Nevada of California and mountains of Nevada and Idaho.

11. **Fragaria cuneifolia** Nutt.; T. & G. Fl. N. Am. 1: 448, as synonym. 1840. — Howell, Fl. NW. Am. 1: 174. 1898.

Fragaria chilensis γ T. & G. Fl. N. Am. 1: 448. 1840.

Rootstock short but not very thick; leaves rather few, firm and somewhat coriaceous, but not as thick as in *F. chiloensis* and not reticulate, silky above when young, glabrate in age, densely silky and slightly tomentulose beneath; stipules lanceolate, brown, scarious; petioles slender, covered with long silky spreading or reflexed hairs; leaflets cuneate to obovate, obtuse or truncate, toothed only at the apex with the middle tooth often smaller, 1.5–4 cm. long, subsessile or the middle one slightly petiolulate, the lateral ones only slightly oblique; runners long and slender; scape slender, less than 1 dm. high, with spreading or reflexed, long hairs, few-flowered, without foliaceous bracts; flowers 1.5–2 cm. in diameter; bractlets and sepals linear-lanceolate; petals obovate-cuneate, a third longer than the sepals; fruit subglobose, about 1 cm. in diameter, more villous than in the other species, except the next; achenes set in shallow pits.

TYPE LOCALITY: Oregon.
DISTRIBUTION: From British Columbia to Oregon and Idaho.

12. **Fragaria Suksdorfii** Rydberg, sp. nov.

Rootstock very thick and woody; leaves moderately thick, green and glabrate above, at first densely silky beneath, in age less densely so and decidedly glaucous; petioles 3–7 cm. long, silky with spreading hairs; leaflets short-petiolulate, elliptic-oblanceolate, 3–5 cm. long, 1–2 cm. wide, crenate above the middle with rounded-ovate teeth; scape 1–1.5 dm. high, furnished, as well as the pedicels, with spreading silky hairs; flowers about 1.5 cm. in diameter; hypanthium and calyx rather densely silky; bractlets lanceolate, 4–5 mm. long, about equaling the ovate short-acuminate sepals; petals broadly oval, about 8 mm. long; fruit subglobose, about 1 cm. in diameter, villous; achenes in very shallow pits.

Type collected on dry grounds in open woods, Falcon Valley, Washington, in 1883, *Suksdorf 486* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Washington and Oregon.

13. **Fragaria platypetala** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 177. 1898.

Fragaria virginiana illinoensis S. Wats. Bot. Calif. 1: 177. 1876.
Fragaria californica Howell, Fl. NW. Am. 1: 174, in part. 1898.
Fragaria latiuscula Greene, Ottawa Nat. 18: 216. 1905.

Rootstock very thick and woody, generally bearing several flowering stems; leaves moderately thick, glabrous and glaucous above and appressed-silky beneath; petioles 2–20 cm. long, silky-villous with long spreading or reflexed hairs, moderately stout or rather slender; leaflets broadly cuneate or obovate, 2–8 cm. long, coarsely serrate or crenate above the middle, nearly always evidently petiolulate, the lateral ones only a little oblique; runners comparatively stout, long; scape comparatively stout, but much less so than in *F. virginiana*, generally about 1 dm., seldom 2 cm., high, sometimes only a few centimeters, rarely exceeding the leaves, rather many-flowered, often leafy-bracteate, silky-villous with long spreading or reflexed hairs; flowers large, 1.5–2.5 cm. in diameter; sepals and bractlets lanceolate; petals almost orbicular, usually twice as long as the sepals; fruit hemispheric, 1–1.5 cm. in diameter; achenes set in rather shallow pits.

TYPE LOCALITY: Not indicated in the original description, but the type in the herbarium of Columbia University was collected at Spout, British Columbia, in 1890, *John Macoun.*

DISTRIBUTION: From Alaska to California, Utah, Wyoming, and Montana.

14. **Fragaria sibbaldifolia** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 176. 1898.

Fragaria vesca Coville, Contr. U. S. Nat. Herb. 4: 95. 1893. Not *F. vesca* L. 1753.

Rootstock short and thick, nearly erect; leaves thin, glabrate above, silky beneath; stipules ovate, scarious; petioles 2–5 cm. long, slightly silky with spreading hairs; terminal leaflet broadly obovate, truncate, coarsely 3–7-toothed at the apex, 1–2 cm. long; lateral ones somewhat smaller, oblique at the base; runners long and slender, rather numerous; scape short, few-flowered, with rather scanty spreading silky hairs; sepals and bractlets broadly lanceolate, acute, otherwise resembling those of *F. truncata;* fruit unknown.

TYPE LOCALITY: Near Mt. Whitney, along the branches of Kern River, California.

DISTRIBUTION: Known only from the type locality.

15. **Fragaria australis** Rydberg.

Fragaria virginiana australis Rydb. Mem. Dep. Bot. Columbia Univ. 2: 180. 1898.

Perennial, with a short but not thick rootstock; leaves moderately thick, green on both sides but slightly paler beneath; petioles 2–6 cm. long, silky with spreading hairs; leaflets elliptic-oblanceolate to obovate, 1–4 cm. long, subsessile, with small broadly ovate teeth, obtuse; scape 2–6 cm. high, silky with ascending or slightly spreading hairs; pedicels appressed-hairy; bractlets linear-lanceolate, 3–4 mm. long, somewhat shorter than the lanceolate sepals; petals oval, 5–8 mm. long; fruit unknown.

TYPE LOCALITY: Not given in the original description, but the type in the Columbia University herbarium was collected at the falls of the Yadkin River, Stanley County, North Carolina, in 1896, *John K. Small.*

DISTRIBUTION: Virginia and North Carolina.

16. **Fragaria virginiana** Duchesne, Hist. Nat. Frais. 204. 1766. $n = 28$

Fragaria vesca Walt. Fl. Car. 150. 1788. Not *F. vesca* L. 1753.
Fragaria canadensis Michx. Fl. Bor. Am. 1 : 299, in part. 1803.
Fragaria elatior Raf. Atl. Jour. 152. 1832. Not *F. elatior* Ehrh. 1793.

Rootstock thick and short; leaves moderately thick, or in shaded places rather thin, sometimes dark-green, not glaucous, slightly silky when young, glabrate in age; petioles 2–30 cm. long, with spreading hairs, rather stout; leaflets 3–10 cm. long, obovate or oblong, always petiolulate, coarsely toothed, obtuse at the apex; runners long and rather stout; scape stout, more or less villous with spreading hairs, generally 1.5–2 dm. high, often with a foliaceous bract and rather many-flowered; pedicels appressed-hairy; flowers 1–2 cm. in diameter; bractlets and sepals lanceolate, acute or acuminate; petals obovate, usually exceeding the sepals by a half; fruit 1–1.5 cm. in diameter, subglobose; achenes set in deep pits.

TYPE LOCALITY: Virginia.
DISTRIBUTION: From Prince Edward Island to Minnesota, Indian Territory, and Georgia; often cultivated and sometimes escaped outside its proper range; origin of the "Scarlet Strawberries."
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1908;* Hayne, Arzn. Gew. **4**: *pl. 28;* Decaisne, Jard. Fruit. *pl. 2.*

17. **Fragaria Grayana** Vilmorin; Gay, Ann. Sci. Nat. IV. **8**: 202. 1857.

Fragaria virginiana illinoensis A. Gray, Man. ed. 5. 155. 1867.
Fragaria virginiana Grayana Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 180. 1898.

Rootstock short and strong; leaves rather firm, sparingly silky-strigose and green on both sides; petioles 5–20 cm. long, rather densely hirsute with spreading or reflexed hairs; leaflets evidently stalked, obovate, 3–10 cm. long, coarsely serrate with ovate teeth, acute or obtuse; scape many-flowered, usually 1–1.5 dm. high, densely hirsute with spreading or reflexed hairs; pedicels also with spreading hairs; bractlets linear-lanceolate, 5–6 mm. long, about equaling the lanceolate sepals; petals nearly orbicular, 5–7 mm. long; fruit subglobose, about 1.5 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Described from cultivated specimens said to be from western New York.
DISTRIBUTION: From Indiana to Missouri, Louisiana, and Alabama.

18. **Fragaria grandiflora** Ehrh. Beitr. **7**: 25. 1792.

Fragaria Ananassa Duchesne, Hist. Nat. Frais. 190, in part. 1766.
Fragaria vesca Ananas Ait. Hort. Kew. **2**: 212. 1789.

Perennial, with short rootstock and runners; leaves rather firm, very dark-green, glabrate and somewhat shining above, paler beneath and silky on the veins; petioles 1–3 dm. long, with spreading hairs, stout; leaflets 4–15 cm. long, broadly obovate, petiolulate, coarsely toothed, usually rounded at the apex; runners stout; scape 1–2 dm, high, usually shorter than the leaves, with long spreading hairs; pedicels 2–5 cm. long, usually with ascending pubescence; flowers over 2 cm. in diameter; bractlets lanceolate, about equaling the ovate acuminate sepals, both often increased in number; petals rounded-obovate, over 1 cm. long; fruit 2–3 cm, in diameter, often acutish at the apex, sometimes laterally flattened or irregular in outline; achenes in shallow pits.

TYPE LOCALITY: Surinam.
DISTRIBUTION: Native of South America, extensively cultivated ("Pine Strawberries"); sometimes escaped and established around dwellings and along roads in the eastern states, California, and British Columbia.
ILLUSTRATIONS: Mill. Fig. Pl. *pl. 288;* Hayne, Arzn. Gew. 4: *pl. 29.*

19. **Fragaria canadensis** Michx. Fl. Bor. Am. 1: 299. 1803.

Fragaria virginiana Eaton, Man. ed. 6. 148, in part. 1833. Not *F. virginiana* Duchesne. 1766.
?*Fragaria serotina* Raf. Atl. Jour. 152. 1832.

Rootstock short, but not very thick; leaves thin but rather firm, often turning reddish, glabrate above, silky and often glaucous beneath; pedicels 3–10 cm. long, slender, silky with spreading hairs, in age often glabrate; leaflets oblong-obovate or cuneate, sharply

serrate, 2–4 cm. long; runners very long and rather slender; scape rather shorter than the leaves, 4–10 cm. high, with spreading hairs, but very soon glabrate, 2–4-flowered; flowers 1–1.5 cm. in diameter; sepals lanceolate, long-acuminate; petals broadly obovate, exceeding the sepals by about a half; fruit oblong-conic, 6–7 mm. in diameter and 1–1.25 cm. long; achenes set in pits.

TYPE LOCALITY: Hudson Bay.
DISTRIBUTION: Newfoundland to Mackenzie, New York, and Michigan.
ILLUSTRATION: Britt. & Brown, Ill. Fl. *f. 1909*.

20. **Fragaria prolifica** Baker & Rydb.; Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 181. 1898.

Rootstock short and very thick, crowned by numerous leaves and several short scapes; leaves rather thin and dark-green, glabrous above, sparingly silky or glabrate and strongly veined beneath, 3–7 cm. long; petioles 5–10 cm. long, appressed silky-strigose; leaflets obovate, rounded at the apex, coarsely toothed with very broad teeth, often somewhat petiolulate, the lateral ones oblique; runners very numerous and rather stout; scapes many-flowered, appressed-strigose, seldom over 1 dm. high; flowers about 1 cm. in diameter; sepals and bractlets ovate-lanceolate; petals obovate, a little exceeding the sepals; fruit hemispheric, 1–1.5 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Neighborhood of Mt. Richthofen, Colorado.
DISTRIBUTION: Mountains of Colorado.

21. **Fragaria pumila** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 181. 1898.

Fragaria virginiana Rydb. Contr. U. S. Nat. Herb. **3**: 496. 1896.

Rootstock very short and thick; leaves rather small and thick, dark-green and silky above when young, soon glabrate, silky-strigose and finely puberulent beneath; petioles 2 4 cm. long, densely appressed silky-strigose, at least when young; leaflets oblong or narrowly obovate, 1–3 cm. long, crenate, the lateral ones only slightly oblique; runners few and short; scape few-flowered, usually about 5 cm. long, silky-strigose, seldom leafy-bracteate; flowers 1–1.5 cm. in diameter; bractlets and sepals lanceolate, about 5 mm. long; petals obovate, exceeding the sepals by about a half; fruit scarcely 1 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Custer, Black Hills, South Dakota.
DISTRIBUTION: From North Dakota to Colorado.

22. **Fragaria multicipita** Fernald, Rhodora **10**: 49. 1908.

Rootstock short and cespitose; petioles 2–7 cm. long, slender, appressed-silky; leaflets sessile, 1–2.5 cm. long, green and slightly strigose or glabrate above, paler and sparingly appressed-silky beneath, the terminal one cuneate-obovate, entire below the rounded or subtruncate, coarsely serrate ends; lateral leaflets oblique, the inner side entire towards the base, the outer rounded and toothed to near the base; scape slender, appressed-silky, shorter than or equaling the petioles, 1–4-flowered; bractlets lanceolate; fruiting pedicels recurved; bractlets lanceolate, acute, about 5 mm. long and about equaling the ovate acuminate sepals; fruit subglobose, 5–10 mm. long; achenes in pits.

TYPE LOCALITY: Gravelly and sandy beaches and bars of the River Ste. Anne des Monts, Quebec.
DISTRIBUTION: Known only from the type locality.

23. **Fragaria Terrae-Novae** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 182. 1898.

? *Fragaria virginiana* Hook. Fl. Bor. Am. 1: 185. 1833.

Rootstock short but not very thick; leaves rather thin, glabrate above, slightly silky beneath; petioles rather slender, 3–15 cm. long, appressed-silky when young, usually nearly glabrous in age, very rarely with somewhat spreading pubescence; leaflets 2–5 cm. long, obovate, serrate, the lateral ones slightly oblique at the base, all subsessile; runners

few and slender; scape slender, at first silky-strigose, glabrate in age, few-flowered, usually without a foliaceous bract; flowers 1.5–2 cm. in diameter; sepals and bractlets lanceolate, acuminate; petals broadly obovate, often nearly twice the sepals; fruit subglobose, about 1 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Newfoundland.
DISTRIBUTION: From Labrador and Newfoundland to Ontario and Massachusetts.

24. **Fragaria glauca** (S. Wats.) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 183. 1898.

Fragaria virginiana (?) *glauca* S. Wats. Bot. King's Expl. 85. 1871.

Rootstock rather short but not very thick; leaves thin, glaucous and almost glabrous above, silky or at last glabrate beneath; petioles slender, 5–15 cm. long, sparingly appressed-silky, or glabrate in age; leaflets broadly obovate, 3–5 cm. long, evidently petiolulate, coarsely toothed, the lateral ones very oblique at the base; runners long and slender, almost glabrous; scape slender, rarely exceeding the leaves and seldom with a foliaceous bract, appressed-silky or glabrate, few-flowered; flowers 1.5–2 cm. in diameter; sepals and bractlets oblong-lanceolate, acute; petals obovate, exceeding the sepals by about a half; fruit subglobose, 1–1.25 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Wahsatch Mountains, Utah.
DISTRIBUTION: From British Columbia to Nevada, New Mexico, South Dakota, and Mackenzie.

25. **Fragaria pauciflora** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 183. 1898.

Fragaria canadensis Richards. Frankl. Journey App. 20, in part. 1823.
Fragaria vesca Rydb. Contr. U. S. Nat. Herb. **3**: 496. 1896.

Rootstock rather slender; leaves thin and glaucous, almost glabrous above and soon glabrate beneath; petioles and scape slender, sparingly appressed-silky or nearly glabrous, slender, 5–15 cm. long; leaflets cuneate, subsessile, coarsely toothed above the middle, the lateral ones scarcely at all oblique at the base; runners rather few and slender; scape 2–4-flowered, seldom exceeding the leaves; flowers 1–1.5 cm. in diameter; bractlets and sepals narrowly lanceolate; petals obovate; fruit subglobose, about 1 cm. in diameter; achenes set in very deep pits.

TYPE LOCALITY: Gallatin Valley, Montana.
DISTRIBUTION: From Hudson Bay to Colorado and Alberta.

26. **Fragaria ovalis** (Lehm.) Rydb. Bull. Torrey Club **33**: 143. 1906.

Potentilla ovalis Lehm. Delect. Sem. Hort. Hamb. 1849: 9. 1849.
Fragaria firma Rydb. Mem. Dep. Bot. Columbia Univ. 2: 184. 1898.

Rootstock short and thick; leaves thick and firm, somewhat glaucous, glabrate above, rather densely silky beneath; petioles rather stout, 1–4 cm. long, densely silky-strigose; leaflets subsessile or short-petiolulate, oblong or cuneate, 2–3 cm. long, toothed above the middle, the lateral ones scarcely at all oblique at the base; scape short, densely silky-strigose, not much over 5 cm. high; runners rather numerous, long and stout; flowers 1–1.5 cm. in diameter; bractlets and sepals lanceolate, the former much smaller; petals obovate, exceeding the sepals by a half; fruit subglobose, about 1 cm. in diameter; achenes set in pits.

TYPE LOCALITY: Originally given as "Mexico," but Lehmann's type, *i. e.*, *Fendler 206*, was collected in New Mexico.
DISTRIBUTION: From Arizona and New Mexico to Wyoming.
ILLUSTRATION: Lehm. Rev. Potent. *pl. 50*.

27. **Fragaria yukonensis** Rydberg, sp. nov.

Rootstock short; leaves thick and firm, glabrous or nearly so above, silky-strigose, pale and somewhat glaucous beneath; petioles 2–5 cm. long, densely silky-strigose; leaflets obovate or obovate-cuneate, 2–4 cm. long, coarsely toothed above the middle with ovate teeth,

distinctly petiolulate; scape 5–8 cm. long, as well as the pedicels and hypanthium densely silky-strigose; bractlets lanceolate or oblong-lanceolate, 4–5 mm. long, equaling or exceeding the ovate-lanceolate sepals; petals broadly obovate or orbicular, 5–7 mm. long; achenes in pits.

Type collected at Lake Lebarge, Yukon Territory, in 1899, *J. B. Tarleton 38* (herb. N. Y. Bot. Gard.).

DISTRIBUTION · Yukon Territory.

25. SIBBALDIA L. Sp. Pl. 284. 1753.

Dactylophyllum Spenn. Fl. Frib. 1084, in part. 1829.
Coelas Dulac, Fl. Hautes Pyr. 303. 1867.

Low, tufted perennial herbs, with short cespitose caudices or rootstocks and ternate leaves. Hypanthium saucer-shaped or cup-shaped, small. Bractlets, sepals, and petals 5. Petals yellow, obovate, cuneate, or oblanceolate, scarcely equaling the sepals. Stamens 5, inserted not very close to the small receptacle; filaments filiform but short, inclined. Pistils 5–20; styles lateral. Ovule and seed attached near the base of the style, ascending and amphitropous.

Type species, *Sibbaldia procumbens* L.

1. Sibbaldia procumbens L. Sp. Pl. 284. 1753.

Potentilla procumbens Clairv. Man. 166. 1811. Not *P. procumbens* Sibth. 1794.

Densely cespitose, or with numerous creeping scaly rootstocks; flowering stems less than 1 dm. high, more or less hirsute-strigose, few-leaved; stipules triangular-obovate to lanceolate; basal leaves on slender petioles, ternate, sparingly appressed-pilose; leaflets 1–2 cm. long, broadly cuneate, 3–5-toothed at the apex; stem-leaves similar but short-petioled; flowers few in rather dense cymes; hypanthium 3–4 mm. in diameter, somewhat pilose; bractlets and sepals subequal, broadly oblong or ovate; petals yellow, spatulate, shorter than the sepals.

TYPE LOCALITY: Lapland.

DISTRIBUTION: Arctic and alpine regions of America from Greenland to Alaska and south in the mountains to New Hampshire, Colorado, and California; also in arctic and alpine Europe and Asia.

ILLUSTRATIONS: Fl. Dan. *pl. 32;* Lam. Tab. Encyc. *pl. 221, f. 1;* Engl. Bot. *pl. 897;* Sv. Bot. *pl. 761;* Schkuhr, Handb. *pl. 88;* Sturm, Fl. Deuts. 17: *pl. 5;* Baxter, Brit. Bot. *pl. 470;* Britt. & Brown, Ill. Fl. *f. 1938;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 100, f. 1–5.*

26. SIBBALDIOPSIS Rydb. Mem. Dep. Bot. Columbia Univ. 2: 187. 1898.

Cespitose undershrub with branched caudex and leathery, ternate leaves. Hypanthium almost flat. Bractlets, sepals, and petals 5. Petals white, obovate or elliptic, neither unguiculate nor emarginate. Stamens about 20, in three series as normally in *Potentilla*, their insertion not distant from the base of the receptacle; filaments long and filiform; anthers round, cordate at the base, opening by a longitudinal slit. Receptacle hemispheric, bearing numerous pistils. Styles slender, filiform, lateral; stigmas truncate. Achenes turgid, villous. Seeds ascending and amphitropous.

Type species, *Potentilla tridentata* Soland.

1. Sibbaldiopsis tridentata (Soland.) Rydb. Mem. Dep. Bot. Columbia Univ. 2: 187. 1898.

?*Potentilla retusa* O. F. Müller, Fl. Dan. 5^{14}: 4. 1780.
Potentilla tridentata Soland. in Ait. Hort. Kew. 2: 216. 1789.

Caudex woody and creeping; annual branches herbaceous, 1–2 dm. high, sparingly appressed silky-strigose; stipules lanceolate, foliaceous, entire, about 5 mm. long; leaves ternate, subcoriaceous, green and shining above, pale beneath; leaflets obovate-cuneate, three-toothed at the truncate apex; cyme open, on a slender peduncle; flowers about 1 cm. in diameter; hypanthium appressed-strigose, in fruit about 5 mm. in diameter; bractlets

oblong, acute, shorter than the ovate-lanceolate acute sepals; petals white, obovate or elliptic, about a half longer than the sepals or more.

TYPE LOCALITY: Newfoundland.
DISTRIBUTION: Greenland to New Jersey, mountains of Georgia, Minnesota, and Manitoba; also in Great Britain.
ILLUSTRATIONS: Engl. Bot. *pl. 2389*; Fl. Dan. *pl. 799* (?), *pl. 1875*; Ait. Hort. Kew. **2**: *pl. 9*; Britt. & Brown, Ill. Fl. *f. 1933*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 100*, *f. 6–10*.

27. DASIPHORA Raf. Aut. Bot. 167. 1838.

Potentilla § *Comocarpa* T. & G. Fl. N. Am. 1: 445. 1840.

Shrubs with scarious sheathing stipules, pinnate leathery leaves, and axillary flowers. Hypanthium saucer-shaped. Bractlets, sepals, and petals 5. Petals in ours yellow, nearly orbicular, neither unguiculate nor emarginate. Stamens about 25, in 5 festoons on a pentagonal disk surrounding the receptacular column; filaments filiform; anthers oblong, flat, not didymous, dehiscent by a longitudinal slit along the margin. Receptacle hemispheric, with numerous pistils; styles club-shaped, thick and glandular upward, inserted near or below the middle of the ovaries; stigmas large and evidently four-lobed; achenes densely covered with long straight hairs. Seeds ascending and amphitropous.

Type species, *Dasiphora riparia* Raf., which is the same as *Potentilla fruticosa* L.

1. Dasiphora fruticosa (L.) Rydb. Mem. Dep. Bot. Columbia Univ. 2: 188. 1898.

Potentilla fruticosa L. Sp. Pl. 495. 1753.
Fragaria fruticosa Crantz, Inst. **2**: 176. 1766.
Dasiphora riparia Raf. Aut. Bot. 167. 1838.
Potentilla floribunda Pursh, Fl. Am. Sept. 355. 1814.
Potentilla tenuifolia Willd.; Schlecht. Ges. Nat. Freunde Berlin Mag. **7**: 284. 1815.
Potentilla fruticosa tenuifolia Lehm. Monog. Potent. 32. 1820.
Potentilla Loureironis Tratt. Ros. Monog. **4**: 4. 1824.
Potentilla fruticosa tenuiloba Seringe, in DC. Prodr. **2**: 579. 1825.
Dasiphora floribunda Raf. Aut. Bot. 167. 1838.
Dasiphora fruticosa tenuifolia Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 190. 1898.
Potentilla fruticosa parvifolia S. Wats. Proc. Am. Acad. 8: 561. 1873. Not *P. parvifolia* Fisch. 1831.
Potentilla fruticosa alpina S. Wats.; Wats. & Rothr. Cat. Pl. Wheeler's Surv. 8. 1874.
Dasiphora fruticosa monticola Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 190. 1898.

Shrub, 3–15 dm. high; branches when young silky-hairy, in age with brownish shreddy bark; stipules ovate to ovate-lanceolate, acuminate, scarious and veiny; leaves pinnate, with 3–7, usually 5, approximate leaflets, silky above, silky and whitish beneath; leaflets in the typical form oblong, 1–2 cm. long, in the variety *tenuifolia* linear-oblong, or in var. *monticola* linear and only 5 mm. long, generally acute and with more or less revolute margins; flowers in small loose cymes or solitary, large, 1.5–3 cm. in diameter, or in var. *monticola* only 1 cm. wide; hypanthium silky-villous, in fruit about 1 cm. in diameter; bractlets linear-oblong, generally slightly exceeding the broadly ovate acuminate sepals; petals yellow, orbicular, often twice as long as the sepals.

TYPE LOCALITY: England.
DISTRIBUTION: From Labrador to Alaska, California, New Mexico, and New Jersey; also in Siberia and western Europe.
ILLUSTRATIONS: Sv. Bot. *pl. 253*; Engl. Bot. *pl. 88*; Wats. Dendr. 1: *pl. 70*; Regel, Gartenflora **9**: *pl. 278*, *f. 3*; Britt. & Brown, Ill. Fl. *f. 1932*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 101*, *f. 1–6* and *f. 7* (var. *monticola*); Amman, Stirp. Ruth. *pl. 18*, *f. 1* (var. *tenuifolia*).

28. DRYMOCALLIS Fourr. Ann. Soc. Linn. Lyon II. 16: 371. 1868.

Argentina Lam. Fl. Fr. **3**: 118, in part. 1778.
Bootia Bigel. Fl. Bost. ed. 2. 206. 1824. Not *Bootia* Adans. 1763, nor *Bootia* Neck. 1768.
Potentilla § *Closterostyles* T. & G. Fl. N. Am. 1: 445. 1840.

Perennial herbs, with scaly rootstocks, glandular foliage, pinnate leaves, and cymose inflorescence. Hypanthium saucer-shaped or hemispheric. Bractlets, sepals, and petals 5. Petals obovate, elliptic, or nearly orbicular, neither unguiculate nor emarginate, yellow or white. Stamens 20–30, in 5 festoons on the much thickened margin of a pentagonal disk around the receptacle; filaments filiform; anthers oblong, truncate at each end or cordate at

the base, flat and dehiscent by a longitudinal marginal slit. Receptacle hemispheric or semi-ellipsoid, with very numerous pistils. Style nearly basal, in all our species except two thickened and glandular a little below the middle and tapering to each end, rather persistent; stigma minute. Seed attached near the base of the style, ascending and orthotropous.

Type species, *Drymocallis rubricaulis* Fourr., which is the same as *Potentilla rubricaulis* Jordan, not *P. rubricaulis* Lehm.

Styles fusiform, less than twice as long as the ovaries.
Sepals ovate to lanceolate, acute, rarely acuminate.
Petals white or cream-colored, often however turning more yellowish in drying.
Petals slightly if at all exceeding the sepals.
Stem stout, 3–10 dm. high, leafy; inflorescence many-flowered, dense; sepals in fruit over 7 mm. long.
Leaves densely hairy; petals orbicular or nearly so, 7–8 mm. long; cyme short and dense; stem densely short-hairy. 1. *D. agrimonioides.*
Leaves sparingly hairy; petals obovate, 5–6 mm. long.
Cyme short, flat-topped; leaflets rounded-obovate to flabelliform; stem and petioles not conspicuously long-hairy. 2. *D. corymbosa.*
Cyme elongate, narrow; leaflets more or less rhombic-obovate; stem and petioles conspicuously long-hairy, especially below. 3. *D. convallaria.*
Stem slender, 2–5 dm. high; stem-leaves reduced; inflorescence few-flowered, open; sepals in fruit about 5 mm. long. 4. *D. lactea.*
Petals much exceeding the sepals; cyme open, few-flowered; stem slender.
Teeth of the leaves ovate; sepals ovate-lanceolate or ovate; stem glandular. 5. *D. pseudorupestris.*
Teeth of tbe leaves lanceolate; sepals lanceolate; stem silky-villous, scarcely glandular. 6. *D. gracilis.*
Petals yellow in anthesis.
Leaflets with ovate teeth.
Petals much exceeding the sepals in length.
Bractlets lanceolate to linear; sepals lanceolate or ovate-lanceolate.
Stem and petioles short-hairy; petals 5–8 mm. long; stem 2–4 dm. high, slender, few-flowered. 7. *D. monticola.*
Stem and petioles long-hairy, the former at least below; petals 8–10 mm. long.
Inflorescence few-flowered, with slender branches; stem-leaves reduced; plant slightly if at all viscid; bractlets usually less than half as long as the sepals.
Leaves, hypanthium, and inflorescence densely hairy. 8. *D. ashlandica.*
Leaves, hypanthium, and inflorescence sparingly hairy, merely sparingly glandular-puberulent, or glabrate. 9. *D. glabrata.*
Inflorescence many-flowered; stem leafy; plants conspicuously viscid; bractlets much more than half as long as the sepals.
Plant tall, 3–10 dm. high; cyme flat-topped.
Leaflets rhombic-obovate, acute, at least the terminal one; inflorescence leafy. 10. *D. foliosa.*
Leaflets of the basal leaves orbicular to obovate, obtuse; upper leaves reduced. 11. *D. valida.*
Plant low, 2–3 dm. (rarely 4 dm.) high; cyme narrow, leafy; leaflets orbicular or rounded-obovate. 12. *D. fissa.*
Bractlets elliptic or oval; sepals broadly ovate.
Stem 1–1.5 dm. high, almost scapose; leaflets, except the terminal one, less than 1 cm. long; plant only slightly viscid. 13. *D. pumila.*
Stem 3–4 dm. high, leafy; leaflets 1–3 cm. long; plant very viscid. 14. *D. viscosa.*
Petals slightly if at all exceeding the sepals.
Petals 5–7 mm. long, orbicular or nearly so.
Bractlets linear-lanceolate, about ⅔ as long as the lanceolate sepals; leaflets obovate, irregularly or doubly toothed. 15. *D. glandulosa.*
Bractlets oblong or oblong-lanceolate; sepals ovate-lanceolate; leaflets more evenly simple-toothed, the lateral ones inclined to be orbicular.
Inflorescence small and dense; bractlets ¾ as long as the sepals. 16. *D. arizonica.*
Inflorescence open; bractlets half as long as the sepals or less. 17. *D. Hanseni.*

Petals 4–5 mm. long, oval, pale-yellow. 18. *D. amplifolia.*
Leaflets incised with lanceolate teeth. 19. *D. incisa.*
Sepals oval or broadly ovate, rarely lanceolate, rounded and mucronate at the apex.
Petals 7–8 mm. long, ascending in anthesis; leaves densely hairy; plant stout. 1. *D. agrimonioides.*
Petals less than 6 mm. long, spreading or reflexed in anthesis.
Leaflets rounded-obovate; plant conspicuously viscid.
Petals 4–6 mm. long; calyx and hypanthium in fruit together 10–12 mm. long; petioles conspicuously long-hairy.
Pedicels very short, often almost none; those of the earlier flowers seldom over 5 mm. long even in fruit; petals ochroleucous; inflorescence very leafy. 20. *D. Wrangelliana.*
Pedicels longer, those of the earlier flowers in fruit 1–2 cm. long; petals yellow; inflorescence less conspicuously leafy. 21. *D. oregana.*
Petals 2–4 mm. long; calyx and hypanthium in fruit together 6–10 mm. long; petioles mostly short-hairy.
Bractlets ovate or oval; inflorescence with slender branches; leaflets simple-toothed. 22. *D. laxiflora.*
Bractlets linear, lanceolate, or oblong; inflorescence with short branches; teeth mostly double.
Petals obovate; sepals twice as long as broad.
Petals yellow; bractlets lanceolate or oblong. 23. *D. viscida.*
Petals whitish; bractlets linear-lanceolate. 24. *D. albida.*
Petals orbicular or nearly so, white; sepals half longer than broad. 25. *D. micropetala.*
Leaflets rhombic-obovate, at least the terminal one.
Plant scarcely viscid, slender; leaflets small. 26. *D. reflexa.*
Plant viscid-villous with long hairs, tall; leaflets ample. 18. *D. amplifolia.*
Styles filiform or nearly so, more than twice as long as the ovaries.
Plant about 2 dm. high; petals much exceeding the sepals; leaflets rhombic-obovate. 27. *D. rhomboidea.*
Plant 4–6 dm. high; petals about equaling the sepals; leaflets cuneate or cuneate-flabelliform. 28. *D. cuneata.*

1. **Drymocallis agrimonioides** (Pursh) Rydberg.

Geum agrimonioides Pursh, Fl. Am. Sept. 351. 1814.
Potentilla arguta Pursh, Fl. Am. Sept. 736. 1814.
Bootia sylvestris Bigel. Fl. Bost. ed. 2. 206. 1824.
Potentilla confertiflora Torr. Fl. U. S. 499. 1824.
Potentilla pennsylvanica arguta Torr. Ann. Lyc. N. Y. **2**: 197. 1827.
Potentilla obliqua Dougl.; Hook. Fl. Bor. Am. **1**: 186, as synonym. 1832.
Potentilla ferruginea Dougl.; Hook. Fl. Bor. Am. **1**: 186, as synonym. 1832. Not *P. ferruginea* Paxton. 1838.
Bootia cymosa Raf. Aut. Bot. 169. 1840.
Potentilla Bigeloviana Wender. Ind. Sem. Hort. Marb. 1841; Linnaea **16**: Litt.-Ber. 112. 1842.
Potentilla glutinosa Pursh; Lehm. Stirp. Pug. **9**: 39, as synonym. 1851.
Geum glutinosum Pursh; Lehm. Stirp. Pug. **9**: 39, as a synonym. 1851.
Potentilla arguta ferruginea Lehm. Rev. Potent. 50. 1856.
Potentilla agrimonioides Farwell, Asa Gray Bull. **3**: 7. 1895. Not *P. agrimonioides* Bieb. 1808.
Potentilla agrimonioides arguta Farwell, Asa Gray Bull. **3**: 7. 1895.
Drymocallis arguta Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 192. 1898.

Stem stout and erect, 3–10 dm. high, striate, generally densely glandular- or viscid-hirsute with spreading hairs, generally simple below, branched above, with very short nearly upright branches; lower stipules ovate-lanceolate, submembranous and subentire, the upper broadly ovate and coarsely dentate or entire; basal leaves many, with petioles 5–20 cm. long, pinnate; leaflets 7–11, strongly veined, densely pubescent on both sides with appressed hairs, or those on the veins spreading; upper three leaflets larger than the others, 2–10 cm. (usually 4–5 cm.) long, doubly serrate, the odd one commonly rhomboid, the others usually obliquely ovate, the lower pairs gradually diminishing downward; stem-leaves similar but smaller, with short petioles and fewer leaflets; flowers in a crowded dense strict cyme, 12–18 mm. in diameter; hypanthium glandular-viscid, in fruit enlarged; bractlets lanceolate, much smaller than the oblong-ovate, acute or mucronate sepals; petals broadly obovate or nearly orbicular, white or ochroleucous, in drying turning yellow, a little longer than the sepals; stamens 25–30, most commonly 30; anthers flat, slightly cordate at the base; pistils numerous; achenes smooth; styles basal or nearly so, fusiform.

TYPE LOCALITY: On the rocky banks of the Susquehanna, Pennsylvania.
DISTRIBUTION: Meadows and rocky places, New Brunswick to the District of Columbia, Colorado, and the Mackenzie, as far north as Fort Simpson.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 63*; Bot. Reg. 16: *pl. 1379*; Britt. & Brown, Ill. Fl. *f. 1913*; Mem. Dep. Bot. Columbia Univ. 2: *pl. 102*.

2. **Drymocallis corymbosa** Rydberg, sp. nov.

Drymocallis convallaria Rydb. Mem. N. Y. Bot. Gard. 1: 219, in part. 1900.

Stem 3–8 dm. high, more or less glandular- or viscid-villous, branched above, with ascending branches; basal leaves pinnate, with 7–11 leaflets; petioles 2–10 cm. long, viscid-villous; upper leaflets broadly obovate, 3–5 cm. long, usually rounded at the apex, sparingly short-hairy, especially on the veins, and glandular-atomiferous, coarsely and deeply doubly serrate with ovate teeth; lower leaflets more orbicular, more or less oblique and smaller; stem-leaves similar but short-petioled and with fewer and more acute leaflets; stipules ovate, deeply toothed; inflorescence many-flowered, rather dense, usually more or less flat-topped; hypanthium densely viscid-villous, in fruit about 1 cm. wide; bractlets linear or linear-lanceolate, 4–5 mm. long; sepals ovate-lanceolate, acute, 5 mm. long, in fruit 8 mm. long; petals white, broadly obovate, 5–6 mm. long; stamens about 25; anthers slightly cordate at the base; pistils numerous; styles fusiform.

Type collected in the Spanish Basin, Montana, in 1897, *Rydberg & Bessey 4348* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Common in meadows from Athabasca and British Columbia to northern Colorado and Washington.

3. **Drymocallis convallaria** Rydb. Mem. Dep. Bot. Columbia Univ. 2: 193. 1898.

Potentilla convallaria Rydb. Bull. Torrey Club 24: 249. 1897.

Stem tall, erect, 4–10 dm. high, long-villous but not very densely so, glandular or viscid, especially above, branched above, with long erect branches; stipules ovate or lanceolate, more or less toothed, about 1 cm. long; basal leaves several, with villous petioles 5–10 cm. long, pinnate; leaflets 9–11, slightly long-pubescent or glabrate, the upper 3–5 cm. long, rhombic-obovate and acute, coarsely serrate and incised with ovate teeth, the lower leaflets more ovate; stem-leaves with fewer more acutish leaflets; cyme with rather elongate upright branches, but with short pedicels, and therefore rather long and narrow; flowers 10–18 mm. in diameter; hypanthium densely glandular-viscid, villous, not much enlarged in fruit, 8–10 mm. in diameter; petals broadly obovate, white, turning yellow in drying, a little longer than the sepals; bractlets lanceolate, much smaller than the ovate-lanceolate sepals, which are about 5 mm. long in flower and 8 mm. in fruit; stamens about 25; anthers flat, slightly cordate at the base; pistils numerous.

TYPE LOCALITY: Near Bozeman, Montana.
DISTRIBUTION: Valleys from Montana to New Mexico, rather local.
ILLUSTRATIONS: Bull. Torrey Club 24: *pl. 306;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 104.*

4. **Drymocallis lactea** (Greene) Rydberg.

Potentilla glandulosa nevadensis S. Wats. Bot. Calif. 1: 178, in part. 1876. Not *P. nevadensis* Boiss. 1838.
Potentilla glandulosa lactea Greene, Fl. Fran. 65. 1891.
Potentilla lactea Greene, Pittonia 3: 20. 1896.

Cespitose perennial; stem slender, 3–6 dm. high, finely pilose, but only slightly viscid; stipules lanceolate, mostly entire; basal leaves pinnate, with about 9 leaflets; petioles 2–5 cm. long, pilose; upper leaflets obovate, sparingly pubescent on the veins and very little glandular, 1.5–3 dm. long, usually rounded at the apex, more or less doubly serrate with ovate teeth; lower leaflets smaller and more rounded; stem-leaves reduced, with 3–7 more acute leaflets; cyme with ascending branches; hypanthium densely pilose, in fruit 6 mm. wide; bractlets lanceolate, 2–3 mm. long; sepals lanceolate, acute, 4 mm. long, in fruit about 6 mm. long; petals obovate, white, about 5 mm. long; stamens 20–25; anthers slightly cordate at the base; pistils many.

TYPE LOCALITY: Fresno and Kern counties, California.
DISTRIBUTION: Meadows at middle elevations in the Sierra Nevada, California.

5. **Drymocallis pseudorupestris** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 194. 1898.

Potentilla pseudorupestris Rydb. Bull. Torrey Club **24**: 250. 1897.
Drymocallis pseudorupestris intermedia Rydb. Mem. N. Y. Bot. Gard. **1**: 220. 1900.

Stem erect, slender, striate, 2–3 dm. high, or in lower meadows (*D. pseudorupestris intermedia*) 4–5 dm. high, branched, with slender ascending branches, sparingly glandular-villous; stipules ovate, more or less toothed; basal leaves several, with rather short petioles; leaflets 7–9, sparingly and finely pubescent or glabrate, the terminal one obovate, cuneate-flabelliform, the lateral ones obliquely elliptic or nearly orbicular, all coarsely serrate and incised with ovate mucronulate teeth; stem-leaves generally few and small, the leaflets 3–5 and more rhombic; cyme open, with ascending branches and slender pedicels; flowers 15–20 mm. in diameter; hypanthium more or less glandular-viscid, villous, in fruit not much enlarged, 8–10 mm. in diameter; petals white, drying yellowish, broadly obovate, exceeding the sepals by a third; bractlets oblong or lanceolate, much shorter than the ovate-lanceolate pointed sepals, which are 5–6 mm. long, in fruit 7–8 mm.; stamens about 25; anthers flat, a little cordate at the base; pistils numerous.

TYPE LOCALITY: Long Baldy, Little Belt Mountains, Montana.
DISTRIBUTION: Mountains from Alberta to northern Wyoming and Idaho.
ILLUSTRATIONS: Bull. Torrey Club **24**: *pl. 307*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 103*.

6. **Drymocallis gracilis** Rydb. Bull. Torrey Club **28**: 177. 1901.

A tall and slender, glandular-pubescent perennial with a more or less cespitose caudex; stem about 6 dm. high, glandular-pilose throughout, branched above; basal and lower cauline leaves pinnately 7–9-foliolate, 1–3 dm. long; leaflets obovate to flabelliform, 1–5 cm. long, coarsely incised, except at the bases, sparingly pubescent on both surfaces; upper stem-leaves 3–5-foliolate, subsessile; cyme open, with ascending branches; pedicels slender, 0.5–4 cm. long, very glandular; hypanthium and calyx glandular, the former 8 mm. broad in fruit; bractlets linear, about half as long as the lanceolate acuminate sepals; sepals 5 mm. long, in fruit often 8 mm. long; petals white, broadly obovate, about 7 mm. long; stamens 20–25; styles slightly fusiform.

TYPE LOCALITY: Pine Ridge, Fresno County, California.
DISTRIBUTION: Known only from the type locality.

7. **Drymocallis monticola** Rydberg sp. nov.

Potentilla glandulosa nevadensis S. Wats. Bot. Calif. **1**: 178. 1876. Not *P. nevadensis* Boiss. 1838.
Drymocallis glandulosa monticola Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 199. 1898.

Stem 2–4 dm. high, finely pilose or glabrate, scarcely at all glandular or viscid, slender, few-leaved; stipules lanceolate, mostly entire; basal leaves 5–15 cm. long, with 7–9 leaflets, finely pilose; upper leaflets broadly obovate, rounded at the apex, 1–2 cm. long, coarsely serrate with ovate teeth, finely pubescent, only slightly glandular-puberulent; lateral leaflets smaller, more rounded; stem-leaves reduced, 3–7-foliolate, with small leaflets; cyme few-flowered, open; hypanthium densely pilose, in fruit 6–7 mm. broad; bractlets linear-lanceolate, 2–3 mm. long; sepals lanceolate, acute, about 4 mm. long, in fruit 6–7 mm.; petals yellow, obovate, 5–6 mm. long; stamens 20–25; pistils many; styles fusiform.

TYPE LOCALITY: Sierra Nevada, California.
DISTRIBUTION: Sierra Nevada region of California and Nevada.

8. **Drymocallis ashlandica** (Greene) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 200. 1898.

Potentilla ciliata Howell, Fl. NW. Am. **1**: 175. 1898. Not *P. ciliata* Greene. 1887.
Potentilla ashlandica Greene, Pittonia **3**: 248. 1898.

Stems several from a creeping rootstock, 2–3 dm. high, slender, finely and densely villous or pilose, especially the upper portion, scarcely at all glandular, simple below, furnished above with erect or ascending branches; stipules linear to obovate, more or less lacerate-toothed; basal leaves with short petioles, more or less pilose, with 5–9

leaflets, which are obovate, 1–2.5 cm. long, coarsely and doubly serrate; stem-leaves smaller, 3–5-foliolate, with acute or acuminate leaflets; flowers in a narrow cyme, 15–20 mm. in diameter; hypanthium densely long-pilose, not glandular; bractlets linear or linear-lanceolate, usually less than half the length of the broadly ovate sepals, which are about 6 mm. long; petals yellow, orbicular or broadly obovate, about 10 mm. long, exceeding the sepals by about a half; stamens 25; pistils many; styles thickened and glandular.

TYPE LOCALITY: Ashland Butte, Oregon.
DISTRIBUTION: Known only from the type station.

9. **Drymocallis glabrata** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 200. 1898.

Stems several from a branching caudex, sparingly pubescent with long, almost arachnoid hairs, in age glabrous, not at all glandular or viscid, branched above, the branches slender, divergent; stipules obovate, entire or somewhat toothed; basal leaves with long slender petioles, thin, sparingly pubescent and glandular-atomiferous, in age almost glabrous, with 7–9 leaflets, which are obovate-cuneate, obtuse, entire at the base, the upper half coarsely toothed; stem-leaves with 3–5 leaflets, short-petioled or subsessile; flowers large, nearly 2 cm. in diameter, in an open cyme with slender diverging branches; hypanthium sparingly silky-villous, in age almost glabrous; bractlets linear-oblong, scarcely half as long as the broadly ovate sepals, which are 5 mm. or in fruit 7 mm. long; petals light-yellow, large, suborbicular, 8–10 mm. long, more than half longer than the calyx; stamens 25–30; pistils many; styles thickened and glandular.

TYPE LOCALITY: Ellensburg, Washington.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 109*.

10. **Drymocallis foliosa** Rydberg, sp. nov.

Stem stout, 4–5 dm. high, viscid-villous with long hairs; stipules ovate, coarsely toothed; basal leaves 1–1.5 dm. long, with about 9 leaflets; petiole and rachis viscid-villous; the upper leaflets rhombic-obovate, 4–5 cm. long, sparingly hairy and glandular-atomiferous, coarsely and more or less doubly serrate with sharp ovate teeth; lower leaflets more rounded; lower stem-leaves similar, the upper 3–5 foliolate, all with rather large and rhombic leaflets; cyme rather open and corymbiform; hypanthium viscid-villous, in fruit about 8 mm. broad; bractlets linear or linear-lanceolate, about 3 mm. long; sepals lanceolate, acute or acuminate, 5–6 mm. long; petals yellow, rounded-obovate, about 8 mm. long; stamens about 25; pistils numerous; styles fusiform.

Type collected in the Bridger Mountains, Montana, in 1896, *J. H. Flodman 596* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains of Montana, Wyoming, and northeastern Utah.

11. **Drymocallis valida** (Greene) Piper, Contr. U. S. Nat. Herb. **11**: 342. 1906.

Potentilla arguta Nutt. Jour. Acad. Phila. **7**: 21. 1834. Not *P. arguta* Pursh. 1814.
Potentilla fissa major T. & G. Fl. N. Am. **1**: 446. 1840.
Potentilla glutinosa Nutt.; T. & G. Fl. N. Am. **1**: 446, as synonym. 1840. — Rydb. Bull. Torrey Club **23**: 245. 1896.
Potentilla valida Greene, Pittonia **3**: 20. 1896.
Drymocallis glutinosa Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 196. 1898.

Stem stout, tall, 4–10 dm. high, erect, striate, more or less pubescent with long, viscid or glandular hairs, branched above; stipules ovate, more or less toothed; basal leaves pinnate; leaflets 7–11, more or less pubescent or glabrate, glandular-atomiferous, 3–6 cm. long, the terminal one broadly obovate, the lateral ones obliquely elliptic or nearly orbicular, all coarsely serrate with broadly ovate or lanceolate, usually simple but often double teeth; stem-leaves similar but with fewer, sometimes more rhombic and acutish leaflets; cyme open, with divergent branches, in fruit rather flat-topped; flowers 18–22 mm. in diameter; hypanthium viscid-villous; bractlets lanceolate, about a third shorter than the ovate-lanceolate pointed sepals, which are about 6 mm. or in fruit 1 cm. long; petals yel-

low, broadly elliptic or nearly orbicular, 8–10 mm. long, exceeding the sepals by about a third; stamens about 25; anthers flat, slightly cordate at base; pistils many; styles fusiform.

TYPE LOCALITY: Victoria, Vancouver Island, British Columbia.
DISTRIBUTION: British Columbia, Washington, Idaho, and northern Utah.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 105* (as *D. glutinosa*).

12. **Drymocallis fissa** (Nutt.) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 197. 1898.

Potentilla fissa Nutt.; T. & G. Fl. N. Am. **1**: 446. 1840.
Potentilla glandulosa S. Wats. Proc. Am. Acad. **8**: 552, in part. 1873.
Potentilla arguta Porter & Coult. Syn. Fl. Colo. 36, in part. 1874.
Potentilla scopulorum Greene, Erythea **1**: 4. 1893.

Stem low, 2–3 dm., or sometimes 4 dm. high, very leafy and branched, glandular-hirsute throughout; stipules very wide, broadly ovate to subreniform, acute and generally deeply toothed; basal leaves with short petioles, very veiny and slightly hairy on both sides, or subglabrous above, pinnate; leaflets, as a rule, 9, nearly orbicular, except the upper ones, which are somewhat rhombic, all deeply incised and doubly serrate; stem-leaves similar, only the upper ones slightly reduced; flowers large, 15–20 mm. in diameter, in a narrow cyme, often in the axils of the leaves far down; hypanthium densely glandular-viscid; bractlets linear to lance-ovate, the broader ones sometimes toothed, shorter than the triangular-lanceolate, long-acuminate sepals, which are 5–6 mm. long, often 1 cm. long in fruit; petals orbicular, very concave, much exceeding the sepals; stamens about 30; pistils numerous; styles fusiform.

TYPE LOCALITY: "Plains of the Rocky Mountains towards the Oregon."
DISTRIBUTION: Black Hills of South Dakota to Alberta, Utah, and Colorado.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 106*.

13. **Drymocallis pumila** Rydberg, sp. nov.

Drymocallis rhomboidea Rydb. Dep. Bot. Columbia Univ. **2**: 203, in part. 1898.

Cespitose; stem about 1.5 dm. high, sparingly viscid-puberulent or glabrate; basal leaves 4–7 cm. long, with 9–11 leaflets; petioles and rachis sparingly glandular; terminal leaflets broadly obovate or flabelliform-cuneate, about 1 cm. long and broad, serrate above the middle with ovate teeth; lateral leaflets broader, often broader than long, glandular-puberulent or almost glabrous; stem-leaves 1–3, the uppermost often with but 3 leaflets; inflorescence small, corymbiform; bractlets elliptic or oblong-lanceolate, about 4 mm. long, acute; sepals ovate, abruptly acute, 5 mm. long; petals rounded-obovate or orbicular, 7–8 mm. long, yellow; stamens about 25; pistils numerous; styles fusiform.

Type collected on moist cliffs, Stein's Mountains, Oregon, in 1901, *Cusick 2571* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Southeastern Oregon to Utah and California.

14. **Drymocallis viscosa** Rydberg, sp. nov.

Densely cespitose; stems 3–4 dm. high, densely viscid-villous; stipules ovate, usually coarsely toothed; basal leaves 1–1.5 dm. long, with 7–9 leaflets; petioles and rachis conspicuously viscid, the former 3–5 cm. long; terminal leaflets 2–3 cm. long, broadly obovate or obovate-flabelliform, serrate with broadly ovate teeth, densely glandular-atomiferous, the lower leaflets rounded and usually very small; stem-leaves 1–5-foliolate, at least the upper 1–3 leaflets ample; cyme many-flowered and corymbiform; hypanthium viscid-villous in fruit, about 8 mm. broad; bractlets elliptic or ovate, 3–4 mm. long; sepals broadly ovate, about 5 mm. long, in fruit 6–7 mm.; petals orbicular, 6–7 mm. long, bright-yellow; stamens about 25; anthers cordate at the base; pistils numerous; styles fusiform.

Type collected in meadows, Mount Chapaca, Washington, in 1897, *A. D. E. Elmer 564* (herb. N. Y. Bot. Gard.).

15. **Drymocallis glandulosa** (Lindl.) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 198. 1898.

Potentilla glandulosa Lindl. Bot. Reg. **19**: *pl. 1583*. 1833.
Potentilla arguta glandulosa Cockerell, W. Am. Sci. **5**: 11. 1888.

Stem strict, 3–6 dm. high, more slender than in *D. arguta*, indistinctly striate, viscid and glandular-hairy, especially upward, subsimple below, irregularly branched above;

lower stipules lanceolate, the upper ovate, acuminate, and usually deeply toothed; basal leaves with petioles 2–10 cm. long, pinnate, sometimes interruptedly so; leaflets 7–9 sparingly hairy, nearly glabrous on the upper surface; leaflets obovate, generally obtuse, simply or doubly serrate with broad teeth, the upper usually a little larger, 1–3 cm. long; stem-leaves smaller, short-petioled, 3–7-foliate; flowers in an open many-flowered cyme, 10–15 mm. in diameter; hypanthium glandular-hirsute, in fruit 6–7 mm. broad; bractlets linear-lanceolate, 4–5 mm. long, much shorter than the oblong or ovate-lanceolate, gradually acuminate or acute sepals, which are 6–7mm. or in fruit about 1 cm. long; petals obovate, about equaling the sepals; stamens 20–25; pistils many; styles fusiform.

TYPE LOCALITY: California.
DISTRIBUTION: Mountains, from Black Hills of South Dakota to British Columbia, California, and New Mexico.
ILLUSTRATIONS: Bot. Reg. **19**: *pl. 1583*; Mem. Dep. Bot. Columbia Univ. **2**: *pl. 107*.

16. **Drymocallis arizonica** Rydberg, sp. nov.

Stem 3–5 dm. high, sparingly viscid-villous, often tinged with red; stipules ovate, often toothed; basal leaves 1–1.5 dm. long, with about 9 leaflets; petioles sparingly viscid-villous, 3–7 cm. long; upper leaflets broadly obovate, coarsely serrate with ovate teeth, the lateral leaflets almost orbicular; lower stem-leaves similar, the upper 3-foliolate; cyme rather dense, few-flowered; hypanthium densely viscidly short-villous, in fruit 7 mm. broad; bractlets oblong, acute, 3–4 mm. long; sepals ovate-lanceolate, acuminate, 5 mm. long, in fruit 7 mm. long; petals nearly orbicular, about equaling the sepals; stamens about 25; pistils many; styles fusiform.

Type collected about Mormon Lake, Arizona, in 1898, *D. T. MacDougal 64* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains of Arizona and St. George region of Utah.

17. **Drymocallis Hanseni** (Greene) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 200. 1898.

Potentilla glandulosa nevadensis Greene, Fl. Fran. 65. 1891. Not *P. glandulosa nevadensis* S. Wats. 1876.
Potentilla Hanseni Greene, Pittonia **3**: 20. 1896.

Stem 5–8 dm. high, rather slender, finely and densely villous, especially the upper part, less glandular than the preceding, simple below, branched above, with nearly erect branches; stipules lanceolate; basal leaves with petioles 3–6 cm. long, more or less puberulent, pinnate, with 9–11 leaflets, which are rounded-obovate, obtuse, or the upper ones acute, coarsely serrate, 1–4 cm. long; stem-leaves smaller, 3–5-foliolate, with acute leaflets; flowers in a narrow cyme, 8–12 mm. broad; hypanthium densely hirsute; bractlets oblong-lanceolate, less than half the length of the ovate acute sepals, which are 5 mm. long, or in fruit 7 mm.; petals yellow, broadly obovate or almost orbicular, a little exceeding the calyx; stamens about 25; pistils many; styles thickened and glandular.

TYPE LOCALITY: Middle and higher Sierras of California.
DISTRIBUTION: Sierra Nevada and San Bernardino mountains.

18. **Drymocallis amplifolia** Rydberg, sp. nov.

Perennial, with a rootstock; stem 6–7 dm. high, sparingly viscid-villous with long spreading hairs; basal leaves 1.5–2 dm. long, with 5, rarely 7, leaflets; rachis with spreading hairs; terminal leaflets rhombic or cuneate-flabelliform, 4–7 cm. long, 3–4.5 cm. wide, coarsely and often doubly serrate with broadly ovate teeth, thin, sparingly hairy on both sides, stalked, lateral ones obovate, oblique and somewhat smaller; lower stem-leaves similar, the upper 3-foliolate with large rhombic leaflets; inflorescence open and somewhat leafy, cymose; bractlets oblong, 2 mm. long, in fruit 3 mm. long or more; sepals elliptic or elliptic-lanceolate, mucronate, 4–5 mm. long or in fruit 8 mm. long; petals pale-yellow, obovate, 4 mm. long; stamens about 25; pistils many; styles fusiform.

Type collected near the Columbia River, western Klickitat County, Washington, in 1894, *W. N. Suksdorf 1761* (herb. N. Y. Bot. Gard.).

19. **Drymocallis incisa** (Lindl.) Rydberg, sp. nov.

Potentilla glandulosa incisa Lindl. Bot. Reg. 23: *pl. 1973.* 1837.
Drymocallis glandulosa incisa Rydb. Mem. Dep. Bot. Columbia Univ. 2: 199. 1898.

Cespitose; stems 3–5 dm. high, finely pubescent or almost glabrous, mostly straw-colored; basal leaves about 1 dm. long, with 7–9 leaflets; petioles with fine soft spreading hairs; terminal leaflet rhombic-obovate, about 3 cm. long and 2 cm. wide, usually acute, sparingly pubescent or glabrate above, softly pubescent beneath, only sparingly glandular, deeply doubly serrate or incised, with lanceolate teeth; lower leaflets more obovate and smaller; upper stem-leaves reduced, often 3-foliolate; inflorescence open; bractlets linear-lanceolate, 3–4 mm. long; sepals lanceolate, acuminate, 5–6 mm. long, in fruit 8–9 mm. long; petals rounded-obovate, often pale-yellow, about 6 mm. long; stamens about 25; pistils numerous; styles fusiform.

TYPE LOCALITY: California.
DISTRIBUTION: Meadows, from Washington and Idaho to California and Nevada.
ILLUSTRATION: Lindl. Bot. Reg. 23: *pl. 1973.*

20. **Drymocallis Wrangelliana** (Fisch. & Avé-Lall.) Rydb. Mem. Dep. Bot. Columbia Univ. 2: 201. 1898.

Potentilla Wrangelliana Fisch. & Avé-Lall. Ind. Sem. Hort. Petrop. 7: 54. 1840.

Stem tall, 4–8 dm. high, striate, leafy, usually dichotomously branched, densely glandular- or viscid-villous with long hairs; lower stipules ovate-lanceolate, the upper ovate, small, 3–10 mm. long, usually entire; basal leaves with long-hairy petioles 2–10 cm. long, pinnate; leaflets 7–9, obovate or nearly orbicular, the upper often 5–6 cm. long, all more or less doubly serrate with ovate-mucronate teeth, sparingly hairy on both sides; stem-leaves short-petioled and with fewer leaflets, which, however, are not much reduced in size, the upper ones only trifoliolate and often opposite; cyme open, usually dichotomously branched with a short-pedicelled or subsessile flower in the angle; pedicels always short, or scarcely any; hypanthium glandular-hirsute, enlarged in fruit, 8–9 mm. broad; bractlets linear-oblong, acute, 4–5 mm. long, shorter than the sepals; sepals about 5–6 mm. long in flower and 8–10 mm. in fruit, oval, abruptly contracted into a mucronate tip, more reticulate-veiny and thinner than in *D. glandulosa;* petals ochroleucous, broadly oval, about the length of the calyx; stamens about 25; pistils many; styles fusiform.

TYPE LOCALITY: Russian Settlement, California.
DISTRIBUTION: Coast ranges of California, mostly in the chapparal.
ILLUSTRATIONS: Lehm. Rev. Potent. *pl. 19;* Mem. Dep. Bot. Columbia Univ. 2: *pl. 108.*

21. **Drymocallis oregana** (Nutt.) Rydberg, sp. nov.

Potentilla oregana Nutt.; T. & G. Fl. N. Am. 1: 446, as a synonym. 1840.

Stem 6–7 dm. high, usually densely viscid-villous with long yellowish hairs, simple below; basal leaves 1.5–2 dm. long, with about 9 leaflets; petioles and rachis long-villous with yellowish hairs; terminal leaflets rounded-obovate with cuneate base, 3–4 cm. long, 2–3 cm. wide, rather densely pubescent on both sides, doubly serrate with ovate teeth; the lateral leaflets somewhat smaller and more rounded; lower stem-leaves similar; upper ones reduced and with 3 oblanceolate leaflets; bractlets oblong-lanceolate, 4–5 mm. long; sepals ovate, mucronate, 5–6 mm. long, in fruit 8–10 mm.; petals yellow, 5–7 mm. long, broadly oval; stamens about 25; pistils many; styles fusiform.

Type collected on the Columbia River, *Nuttall* (herb. Columbia Univ.).
DISTRIBUTION: Dry copses and sand bars, from the Mackenzie and British Columbia to Oregon and Idaho.

22. **Drymocallis laxiflora** Rydberg, sp. nov.

Potentilla reflexa Rydb. Bull. Torrey Club 23: 247. 1896. Not *P. reflexa* Greene. 1896.
Drymocallis reflexa Rydb. Mem. Dep. Bot. Columbia Univ. 2: 203, in part. 1898.

Stems slender, branched, more or less tinged with purple, 3–4 dm. high, minutely viscid-villous; stipules ovate, entire or toothed; basal leaves several, rather short-petioled,

finely pubescent, rather firm in texture, pinnate; leaflets about 9, 1–3 cm. long, broadly oval or obovate, coarsely and simply serrate with broad teeth; stem-leaves 5-foliolate or ternate, more acute; cyme open, with rather long slender branches; flowers about 8 mm. in diameter; hypanthium rather densely short viscid-villous, in fruit 6–7 mm. in diameter; bractlets ovate, scarcely half as long as the ovate mucronate sepals, which are 4 mm. long, or in fruit 6 mm.; petals dark-yellow, obovate, scarcely equaling the sepals; both reflexed in anthesis; stamens about 25; filaments short; anthers deeply cordate at the base; pistils numerous; styles fusiform.

Type collected in the Big Tree Cañon on the road from Three Rivers to Mineral King, Tulare County, California, in 1891, *Coville & Funston 1355* (U. S. Nat. Herb.).

DISTRIBUTION: Known only from the type locality.

ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. 2: *pl. 110* (as *D. reflexa*).

23. **Drymocallis viscida** Parish, Bot. Gaz. 38: 460. 1904.

= *Drymocallis reflexa* Rydb. Mem. Dep. Bot. Columbia Univ. 2: 203, in part. 1898.

Stems slender, 3–7 dm. high, usually rather densely viscid-villous with long hairs, usually tinged with purple; stipules semi-ovate, more or less toothed; basal leaves numerous, about 1 dm. long; petioles and rachis viscid-villous; leaflets usually 7,1–5 cm. long; the terminal obovate with a cuneate base, the rest obovate to orbicular, rather densely pubescent and viscid on both sides, usually doubly serrate with ovate teeth; cymes rather condensed, few-flowered; hypanthium densely viscid-pubescent, in fruit 6–7 mm. broad; bractlets narrowly lanceolate, 2 mm. long; sepals elliptic-ovate,mucronate, about 5 mm. long; petals yellow, obovate, a little shorter than the sepals, spreading in anthesis; stamens about 20; filaments very short; pistils many; styles fusiform.

TYPE LOCALITY: Snow Cañon, San Bernardino Mountains, California.

DISTRIBUTION: In the pine belt of the mountains of southern California and the southern part of Sierra Nevada.

24. **Drymocallis albida** Rydberg, sp. nov.

Stems usually several, viscid-villous with usually short hairs; stipules lanceolate or lance-ovate, acuminate; basal leaves 1–1.5 dm. long, pinnate with usually 7 leaflets; terminal leaflets 2–4 cm. long, obovate, usually acutish, sparingly pubescent, usually doubly serrate with sharp ovate teeth; lateral leaflets more rounded-obovate; stem-leaves 3–5-foliolate, the upper somewhat smaller; inflorescence more open than in the preceding, but pedicels rather short; hypanthium densely viscid-pubescent, in fruit 6–7 mm.broad; bractlets linear-lanceolate, about 2 mm. long; sepals elliptic-ovate, mucronate, about 4–5 mm. long, in fruit 7–8 mm. long; petals obovate, whitish, usually shorter than the sepals; stamens 20–25; styles fusiform.

Type collected in damp or shady places at Bingen, western Klickitat County, Washington, in 1893, *Suksdorf 2209* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: British Columbia and Washington.

25. **Drymocallis micropetala** Rydberg, sp. nov.

Stem 4–6 dm. high, sparingly viscid-villous, branched above with erect branches; stipules ovate, 5–7 mm. long, usually entire; basal leaves 1–2 dm. long, pinnate with 5–7 leaflets; petioles and rachis viscid-villous; terminal leaflet obovate with cuneate base, 2–3 cm. long, rather densely pubescent with spreading hairs, only slightly glandular-atomiferous, coarsely serrate, often with double ovate teeth; lateral leaflets smaller and more rounded; lower stem-leaves similar, the upper 3–5-foliolate and subsessile; inflorescence rather dense, with strongly ascending branches; hypanthium densely short-villous, in fruit about 6 mm. broad; bractlets broadly lanceolate, acute, 2 mm. long; sepals ovate, mucronate, about 4 mm. long or in fruit 6 mm. long; petals white, turning yellow in drying, nearly orbicular, 2–3 mm. long; stamens about 20; pistils many; styles fusiform.

Type collected in City Creek Cañon, near Salt Lake City, Utah, in 1905, *P. A. Rydberg 6153* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Cañons of northern Utah to central Idaho.

26. **Drymocallis reflexa** (Greene) Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 203. 1898.

Potentilla glandulosa reflexa Greene, Fl. Fran. **1**: 65. 1891.
Potentilla reflexa Greene, Pittonia **3**: 19. 1896.

Stem 3–6 dm. high, villous with rather long spreading hairs, only slightly viscid; basal leaves pinnate, with about 7 leaflets; terminal leaflet rhombic, 2–3 cm. long, rather densely pubescent with spreading hairs, only slightly glandular, coarsely serrate with ovate teeth; lateral leaflets more obovate and smaller; cyme few-flowered, rather open; bractlets lanceolate, much shorter than the oval-ovate mucronate sepals; petals deep-yellow, rounded-obovate, about equaling the sepals, in anthesis reflexed; stamens about 20; pistils many; styles fusiform.

TYPE LOCALITY: Foothills in dry ground, usually under cover of shrubbery or in groves of pines, Sierra Nevada, California.
DISTRIBUTION: Central Sierra Nevada.

27. **Drymocallis rhomboidea** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 203. 1898.

Potentilla rhomboidea Rydb. Bull. Torrey Club **23**: 248. 1896.

Stem low and slender, about 2 dm. high, simple, about 3-leaved, not striate, nearly glabrous, or glandular above with very short hairs; stipules small, 2–4 mm. long, ovate, subentire; basal leaves many, short-petioled; leaflets about 7, smooth or beset with a few scattered hairs, rhombic-ovate, mostly acute, serrate with acute teeth, the largest leaflets 1.5 cm., seldom 2 cm. long; stem-leaves about 3, similar, the lowest with about 5 leaflets, short-petioled, the other two generally 3-foliolate and subsessile; flowers few in open cymes, about 1 cm. in diameter; hypanthium glandular with very short hairs, sometimes also with a few long ones; sepals 4–5 mm. long in flower or about 8 mm. in fruit; bractlets linear-oblong, obtuse or acutish, half the length of the broadly ovate, slightly mucronate sepals; petals yellow, obovate, a little exceeding the sepals; stamens 15–20; styles nearly basal, filiform, long and slender, in fruit about twice as long as the smooth achene.

TYPE LOCALITY: Deer Creek Mountains, Oregon.
DISTRIBUTION: Mountains of Oregon and Washington to western Montana.
ILLUSTRATIONS: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 112, f. 1–5*.

28. **Drymocallis cuneifolia** Rydb. Mem. Dep. Bot. Columbia Univ. **2**: 204. 1898.

Stem erect, 3–4 dm. high, with few divergent branches, sparingly and finely silky-villous, scarcely at all glandular; stipules broadly ovate, entire or toothed; basal leaves several, with slender petioles, pinnate; leaflets 5–9, finely silky-villous, broadly cuneate-flabelliform, coarsely toothed at the apex, entire-margined below; stem-leaves with 3–5 similar leaflets; cyme open, with divergent branches and slender pedicels; hypanthium finely silky, almost hemispheric, 6–7 mm. in diameter; bractlets narrowly linear, much shorter than the broadly ovate acute sepals, which are 4 mm. long; petals erect, obovate, scarcely exceeding the sepals; stamens about 20; anthers flat, slightly cordate at base; styles nearly filiform, much longer than the achenes.

TYPE LOCALITY: San Bernardino Mountains, California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Dep. Bot. Columbia Univ. **2**: *pl. 111*.

29. **CHAMAERHODOS** Bunge, in Ledeb. Fl. Alt. **1**: 429. 1829.

Perennial or biennial herbs, with tap-roots, 2–4 times ternately divided leaves and small cymose flowers. Hypanthium cup-shaped, small. Petals and sepals 5; bractlets wanting. Petals obovate or cuneate, somewhat clawed. Stamens 5, opposite the petals; filaments subulate, short, persistent; anthers didymous, opening by a slit. Pistils 5–10, or more; styles basal, filiform. Seed inserted near the base of the style, ascending and nearly orthotropous.

Type species, *Sibbaldia erecta* L.

1. **Chamaerhodos Nuttallii** Pickering, sp. nov.

Sibbaldia erecta Pursh, Fl. Am. Sept. 211. 1814. Not *S. erecta* L. 1753.
Sibbaldia erecta parviflora Nutt. Gen. 1: 207. 1818.
Chamaerhodos erecta Hook. Fl. Bor. Am. 1: 196. 1832. Not *C. erecta* Bunge. 1829.
Chamaerhodos erecta Nuttallii T. & G. Fl. N. Am. 1: 433. 1840.
Chamaerhodos Nuttallii Pickering; T. & G. Fl. N. Am. 1: 433, as synonym. 1840.

Plant 1–3 dm. high, erect, branching and leafy, hirsute and glandular; basal leaves numerous and rosulate, 2–4-ternately divided into linear or oblong divisions; stem-leaves also numerous, similar but smaller and less divided; inflorescence a many-flowered, often flat-topped panicle with ascending branches; pedicels erect or nearly so, even in fruit scarcely exceeding the flowers in length; hypanthium 2–3 mm. in diameter, hispid; sepals narrowly lanceolate, equaling or somewhat shorter than the white obovate-cuneate petals.

TYPE LOCALITY: Near the Mandan villages [Dakota].
DISTRIBUTION: From Saskatchewan to South Dakota, Wyoming, and Alaska.
ILLUSTRATIONS: Mem. Dep. Bot. Columbia Univ. 2: *pl. 112, f. 6–10.*

Tribe 8. **ALCHEMILLEAE.** Perennial or annual herbs, with alternate leaves. Stipules of the stem-leaves are usually large, connate around the stem and more or less adnate to the petioles or the leaf-blades; in some species of *Lachemilla*, all the stipules are connate-perfoliate and together with the reduced leaf-blades form a subconic, many-cleft sheath around the stem. Inflorescence cymose, with the flowers often congregated in small clusters. Hypanthium campanulate or urceolate, in fruit enclosing the achenes. Disk more or less developed, bearing the stamens on the inner or outer side. Sepals 4 or 5. Bractlets of the same number or sometimes lacking. Petals wanting. Anthers opening by a transverse slit. Pistils 1–8; styles nearly basal, persistent; stigmas capitate.

Stamens inserted on the outside of the disk, introrse.
  Stamens 4, alternate with the sepals; disk strongly developed; perennials with strong rootstocks. 30. ALCHEMILLA.
  Stamens 1, seldom 2–5, opposite one or more of the sepals or by shifting nearly alternate with them; disk poorly developed; plants annual. 31. APHANES.
Stamens 2, inserted on the inside of the disk, extrorse, opposite two of the sepals; disk usually well developed; plants with perennial roots, sometimes with woody caudices.
  Leaves palmately lobed or divided; sepals and bractlets 1-nerved. 32. LACHEMILLA.
  Leaves, at least the basal ones, pinnately divided; sepals and bractlets 3-nerved. 33. ZYGALCHEMILLA.

30. **ALCHEMILLA** L. Sp. Pl. 123. 1753.

Perennial herbs, with strongly developed rootstocks. Basal leaves petioled, with scarious, brown or wine-colored stipules; leaf-blades digitately lobed or divided; stem-leaves with connate and adnate stipules and short-petioled or sessile blades, the uppermost much reduced. Inflorescence cymose, but often very irregular and the yellowish or greenish flowers conglomerate in small terminal clusters. Hypanthium campanulate or obconic, only slightly contracted at the mouth; disk thick and almost closing the mouth of the hypanthium. Sepals usually 4, subtended by 4 bractlets. Petals wanting. Stamens 4, inserted outside the disk, between the sepals; filaments short; anthers introrse, opening by a transverse slit. Pistils usually solitary; styles basal; stigmas capitate. Achenes ovate.

Type species, *Alchemilla vulgaris* L.

Leaf-blades green, merely lobed.
  Hypanthium glabrous.
    Pubescence of the stem and the petioles dense and spreading; inflorescence open; leaf-blades glabrous above. 1. *A. pratensis.*
    Pubescence of the stem and the petioles scant and mostly appressed; inflorescence congested.
      Leaf-blades pubescent on both sides; stem-leaves with shallow lobes. 2. *A. glomerulans*
      Leaf-blades glabrous or nearly so above; stem-leaves with deep lobes. 3. *A. Wichurae.*
  Hypanthium pubescent. 4. *A. filicaulis.*
Leaf-blades silvery beneath, divided to near the base. 5. *A. alpina.*

1. **Alchemilla pratensis** F. W. Schmidt, Fl. Boëm. **3**: 88. 1794.

Alchemilla vulgaris L. Sp. Pl. 123, in part. 1753. — Lam. Fl. Fr. **3**: 303. 1778.

Perennial, with a strong rootstock; stems several, 3–5 dm. high, hirsute with spreading hairs; basal leaves long-petioled; stipules brown, scarious, pubescent or glabrate; petioles 0.5–3 dm. long, hirsute with spreading hairs; leaf-blades orbicular or rounded-reniform, 5–13 cm. broad, plicate, glabrous and light-green above, slightly glaucous and appressed-pubescent beneath, with 9–11 rounded lobes, which have on each side 9–12 obliquely ovate teeth somewhat directed forward; stipules of the stem-leaves comparatively small, connate, rounded, toothed; stem-leaves subsessile, reniform; inflorescence openly cymose, many-flowered; pedicels divergent, equaling or longer than the flowers, which are rather small, yellowish; hypanthium at first obconic, in fruit more urceolate, glabrous, acute at the base, about 1 mm. long; bractlets and sepals glabrous, about 1.5 mm. long, acute, the former lanceolate, the latter ovate.

TYPE LOCALITY: Bohemia.
DISTRIBUTION: Temperate Europe; in America introduced and naturalized from Nova Scotia to Massachusetts.
ILLUSTRATION: Baxter, Br. Bot. 4: *pl. 280* (as *A. vulgaris*).

2. **Alchemilla glomerulans** Buser, Bull. Herb. Boiss. **1**: App. 2: 30. 1893.

Perennial, with a thick rootstock; stem usually 2–3 dm. high, sparingly appressed-pubescent; basal leaves long-petioled; stipules brown, scarious, ovate, pubescent; petioles 0.5–2.5 cm. long, sparingly pubescent or glabrate; leaf-blades reniform, 5–13 cm. wide, plicate, with nearly central petioles, pubescent on both sides, with 9–11 rounded lobes having 5–8 large ovate mucronate teeth on each side; stem-leaves short-petioled or sessile; stipules large, often 1–1.5 cm. long, connate, rounded or truncate, with ovate teeth; leaf-blades reniform to flabelliform-cuneate; inflorescence irregularly cymose with the yellowish flowers in small rounded clusters at the ends of the branches; pedicels short, glabrous or with a few scattered hairs; hypanthium 1–1.5 mm. long, campanulate, rather abruptly acute at the base, glabrous; bractlets lanceolate, glabrous, nearly as long as the ovate acute sepals, which are 1–1.5 mm. long.

TYPE LOCALITY: Switzerland.
DISTRIBUTION: Alpine regions of western Europe, Lapland, Iceland, Greenland, Baffin Bay region, and Labrador.

3. **Alchemilla Wichurae** Buser, Bull. Herb. Boiss. **2**: 110. 1894.

Perennial, with a rootstock; stems 0.5–3.5 dm. high, glabrous or somewhat pubescent below with appressed hairs; basal leaves petioled; petioles 0.5–2 dm. long, appressed-pubescent; leaf-blades 2.5–10 cm. wide, light-green, somewhat yellowish, 9- or rarely 11-lobed, suborbicular with nearly central petioles, glabrous or nearly so above, appressed-pubescent on the nerves and near the petioles beneath, teeth numerous; stem-leaves subsessile; stipules rather small; leaf-blades semicircular or rounded-reniform, more deeply lobed, often with broadly triangular lobes; inflorescence rather dense; flowers in small glomerules, yellowish; hypanthium 1.5 mm. long, glabrous, obconic or in fruit more turbinate; sepals 1.5 mm. long, triangular-ovate, acute; bractlets lanceolate, two thirds to three fourths as long.

TYPE LOCALITY: Quickjock, Lule Lapmark, Sweden.
DISTRIBUTION: Lapland, Iceland, East Greenland.

4. **Alchemilla filicaulis** Buser, Bull. Herb. Boiss. **1**: App. 2: 22. 1893.

Perennial, with a creeping rootstock; stems 1–3, ascending or decumbent, 1–3 dm. high, slender, hirsute with spreading hairs, becoming yellowish in age; basal leaves long-petioled; stipules usually wine-color, lanceolate, entire; petioles 3–10 cm. long, hirsute; leaf-blades reniform, 3–9 cm. broad, rather thick, plane, with 7–9 rounded lobes, bright-green above, paler beneath, turning somewhat yellowish in age, hairy on both sides or glabrate

beneath; teeth a little longer than broad, ovate, cuspidate; stipules of the stem-leaves rounded, connate and adnate to the petiole or leaf-blade, provided with coarse ovate teeth; inflorescence partly subumbellate; hypanthium at first obconic, in age urceolate, about 2 mm. long, at least of the lower flowers pubescent with scattered hairs; pedicels about the length of the flowers; bractlets lanceolate, nearly as long as the triangular-ovate acute sepals, which are about 1 mm. long; filaments very short.

TYPE LOCALITY: Switzerland.
DISTRIBUTION: Mountains of western Europe, Scandinavia, Iceland, Greenland, Labrador, and Newfoundland.

5. **Alchemilla alpina** L. Sp. Pl. 123. 1753.

Alchemilla argentea Lam. Fl. Fr. 3: 303. 1778.

Perennial, with a short stoloniferous rootstock; stems erect or ascending, 1–3 dm. high, appressed silky-canescent; basal leaves long-petioled; stipules brown, scarious, entire; petioles 2–10 cm. long, silky-canescent; leaf-blades digitately divided to near the base; segments 5–7, oblong, elliptic, or oblanceolate, toothed at the apex, 1–2.5 cm. long, glabrate and dark-green above, silvery-silky beneath; stipules of the stem-leaves foliaceous, connate, ovate, more or less toothed; leaf-blades usually 3-cleft and subsessile; flowers in small glomerules, often close together; hypanthium campanulate, 1.5 mm. long, villous; bractlets lanceolate, smaller than the ovate sepals, which are yellowish, silky without, glabrous within; filaments very short; pistils usually solitary; achenes ovate, glabrous, yellowish.

TYPE LOCALITY: Alps of Europe.
DISTRIBUTION: Mountains of central and western Europe; also from Greenland to Miquelon and the White Mountains of New Hampshire.
ILLUSTRATIONS: Fl. Dan. *pl. 49;* Engl. Bot. *pl. 244;* Fl. Deuts. ed. 5. *pl. 2545.*

31. **APHANES** L. Sp. Pl. 123. 1753.

Percepier (Dill.) Moench, Meth. 690. 1794.

Small annual herbs. Leaves short-petioled or subsessile; stipules connate and adnate to the petioles or leaf-blades, few-toothed; blades deeply digitately 3-parted and again toothed or lobed. Inflorescence forming small axillary clusters. Hypanthium ellipsoid-urceolate, contracted at the mouth. Disk poorly developed. Sepals usually 5, rarely 4, subtended by as many or fewer small bractlets, which, however, occasionally are lacking. Petals none. Stamens usually solitary, rarely 2–5, inserted opposite one or more sepals, but sometimes by shifting, inserted almost between them; filaments short; anthers introrse. Pistils 1–4, usually 2; styles slender, basal; stigmas capitate.

Type species, *Aphanes arvensis* L.

Hypanthium 1.5–2 mm. long and 0.75–1 mm. thick. (Introduced.) — 1. *A. arvensis.*
Hypanthium about 1 mm. long and 0.5–0.75 mm. thick. (Native.)
  Sepals about one third as long as the puberulent or glabrous hypanthium.
    Sepals broadly ovate, erect or closing in fruit; bractlets usually present. — 2. *A. australis.*
    Sepals narrowly ovate, ascending in fruit.
      Leaf-blades short-petioled; petioles usually shorter than the stipules; bractlets minute, some or all of them lacking. — 3. *A. cuneifolia.*
      Leaf-blades long-petioled, cleft to near the base; petioles usually exceeding the stipules; bractlets present, half as long as the sepals. — 4. *A. occidentalis.*
  Sepals nearly as long as the densely pilose hypanthium, lanceolate; bractlets half as long or more. — 5. *A. macrosepala*

1. **Aphanes arvensis** L. Sp. Pl. 123. 1753.

Alchemilla arvensis Scop. Fl. Carn. ed. 2. 1: 115. 1772.
Alchemilla Aphanes Leers, Fl. Herborn. 54. 1775.
Percepier arvensis Moench, Meth. 690. 1794.

Low, profusely branched annual; stems 8–20 cm. long, hirsute; stipules connate, 3–7 mm. long, pectinately cleft with lanceolate divisions; leaf-blades cuneate-flabelliform, 5–15 mm. long, 3-parted into cuneate, 3–5-cleft divisions, hirsute on both sides; hypanthium hirsute, 1.5–2 mm. long, 0.75–1 mm. thick; bractlets present, ovate, about one third as long as the ovate acutish sepals; stamen usually solitary; pistils 2; achenes often solitary, ovoid, glabrous, about 1.5 mm. long.

TYPE LOCALITY: Fields of Europe.
DISTRIBUTION: Europe and western Asia; introduced in Nova Scotia.
ILLUSTRATIONS: Dietr. Fl. Bor. 7: *pl. 489;* Engl. Bot. *pl. 1011;* Fl. Deuts. ed. 5. *pl. 2547;* Britt. & Brown, Ill. Fl. *f. 1955.*

2. **Aphanes occidentalis** (Nutt.) Rydberg.

Alchemilla occidentalis Nutt.; T. & G. Fl. N. Am. 1: 432. 1840.
Alchemilla arvensis occidentalis Piper, Fl. Palouse Reg. 96. 1901.

Low annual; stems 3–10 cm. high, profusely branched, ascending, hirsute with ascending hairs; stipules connate, often 5 mm. long, 2–4-cleft, with lanceolate divisions; leaf-blades, except the uppermost, petioled, cuneate-flabellate in outline, deeply 3-parted, 5–8 mm. long; divisions cuneate, again 3–5-cleft into oblong divisions, sparingly hirsute on both sides; hypanthium nearly 1 mm. high, urceolate, rather densely pubescent with short, spreading hairs; bractlets usually present, ovate, about half as long as the ovate acutish sepals; stamen solitary; pistils 1 or 2; achene usually solitary, glabrous, nearly 1 mm. long.

TYPE LOCALITY: Rocky plains of the Oregon [Columbia River].
DISTRIBUTION: Oregon and Washington.

3. **Aphanes australis** Rydberg, sp. nov.

?*Alchemilla monandria* Sw. Prodr. 38. 1788.
Alchemilla Aphanes Pursh, Fl. Am. Sept. 112. 1814. Not *A. Aphanes* Leers. 1775.
Alchemilla arvensis T. & G. Fl. N. Am. 1: 432. 1840. Not *Alchemilla arvensis* Scop. 1772.

Low annual; stem 3–10 dm. high, branched at the base, decumbent or ascending, strigose; stipules 3–4 mm. long, connate with 3 or 4 oblong divisions; lower leaves petioled, the rest sessile, the blades broadly cuneate in outline, sparingly pubescent with rather appressed hairs, 3–10 mm. long, 3-parted and the divisions again 3–5-cleft or -toothed; hypanthium urceolate, nearly 1 mm. long, pubescent with short spreading hairs; bractlets broadly ovate, minute; sepals broadly ovate, about one fourth as long as the hypanthium, usually closed in fruit; achenes usually solitary, ovoid, glabrous and shining.

Type collected in pastures near Washington, D. C., in 1898, *E. S. Steele*.
DISTRIBUTION: From the District of Columbia and Virginia to Georgia.

4. **Aphanes cuneifolia** (Nutt.) Rydberg.

Alchemilla cuneifolia Nutt.; T. & G. Fl. N. Am. 1: 432. 1840.
Alchemilla arvensis Brewer & Wats. Bot. Calif. 185. 1876. Not *Alchemilla arvensis* Scop. 1772.
Alchemilla arvensis glabra Greene, Fl. Fran. 62. 1891.

Low slender annual; stem often simple or somewhat branched, ascending or erect, 2–10 cm. high, rather sparingly pubescent with ascending hairs; stipules less than 5 mm. long, connate, with 2–4 ovate teeth; lower leaf-blades short-petioled, the upper sessile, 2–8 mm. long, cuneate, sparingly pubescent, 3-cleft about halfway down, their divisions with 2–4 ovate teeth; hypanthium nearly 1 mm. long, urceolate, pubescent with short, spreading hairs or glabrous; bractlets minute or often wanting; sepals ovate, about one third as long as the hypanthium; achenes usually solitary.

TYPE LOCALITY: Dry plains, St. Barbara, California.
DISTRIBUTION: From Washington to Lower California.

5. **Aphanes macrosepala** Rydberg, sp. nov.

Low annual; stems hirsute with ascending hairs, decumbent, much branched at the base; stipules connate, less than 5 mm. long, with 2–4 ovate teeth; leaf-blades subsessile or the lowest short-petioled, 3–6 mm. long, sparingly pubescent, cuneate-flabellate, 3-cleft, the divisions 2–4-toothed; hypanthium short-urceolate, in fruit rounded-ellipsoid, densely pubescent with moderately long, divaricate hairs; sepals and bractlets lanceolate; the former nearly as long as the hypanthium; the latter about one third as long; achenes usually solitary, glabrous, ovate, acute, yellowish and shining.

Type collected at Wimer, Oregon, in 1892, *E. W. Hammond 116* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: British Columbia to California.

32. **LACHEMILLA** (Focke) Rydberg, gen. nov.

Alchemilla § *Lachemilla* Focke, E. & P. Nat. Pfl. 3^3: 43. 1894.

Herbs, with perennial roots, of various habits, sometimes wholly herbaceous, sometimes with cespitose woody caudices or with branched rootstocks. Stipules, at least of the stem-leaves, connate and adnate to the petioles or leaf-blades, or together with the reduced leaf-blades forming obconic, many-cleft sheaths; basal leaf-blades digitately lobed or divided.

Inflorescence cymose, but by shortening of the branches the flowers are often conglomerate in small axillary or terminal clusters. Hypanthium campanulate or urceolate, at least in age contracted at the mouth. Sepals and bractlets 4, 1-nerved. Petals none. Disk more or less developed, with the 2 stamens borne on the inner edge; filaments short, seldom more than half as long as the sepals; anthers extrorse, opening by a transverse slit. Pistils 1–8, usually more or less stipitate; styles slender, basal; stigmas capitate.

Type species, *Alchemilla nivalis* H.B.K.

Leaves with normal leaf-blades.
- Leaf-blades 5–11-lobed, reniform in outline; plants sarmentose-stoloniferous.
  - Leaf-blades with 9–11 rounded shallow lobes, sericeous beneath. 1. *L. orbiculata.*
  - Leaf-blades 5–7-cleft, grayish beneath. 2. *L. venusta.*
- Leaf-blades 3- (rarely 5-) divided to near the base; stem erect or ascending, rarely creeping.
  - Hypanthium campanulate or campanulate-turbinate, only slightly contracted at the mouth; inflorescence open, corymbose; leaves rather leathery.
    - Leaf-segments merely toothed towards the apex; hypanthium 1.5 mm. long; bractlets often longer than the sepals. 3. *L. procumbens.*
    - Leaf-segments deeply cleft; hypanthium about 1 mm. long; bractlets shorter than the sepals. 4. *L. vulcanica.*
  - Hypanthium urceolate, strongly constricted at the mouth, at least in fruit.
    - Hypanthium pubescent.
      - Hypanthium deeply urceolate, almost twice as long as the sepals; lateral segments of the leaves usually deeply 2-cleft and toothed; stems very hairy. 5. *L. Schiedeana.*
      - Hypanthium short-urceolate, scarcely longer than the sepals, in fruit rounded-ellipsoid.
        - Glomerules of the flowers mostly axillary; leaves sparingly pubescent.
          - Hypanthium pubescent with spreading hairs.
            - Hypanthium densely pubescent with very short hairs; leaves yellowish-green; stem strigose. 6. *L. velutina.*
            - Hypanthium sparingly pubescent with long hairs; leaves dark-green; stem hirsute. 7. *L. tripartita*
          - Hypanthium sparingly pubescent with appressed hairs.
            - Stem erect or decumbent, not creeping; pistils 2–4. (Mexican and Central American.)
              - Sepals glabrous; stem with spreading hairs. 8. *L. Pringlei.*
              - Sepals ciliate; stem with appressed hairs. 9. *L. orizabensis.*
            - Stem creeping; pistils 5. (West Indian.) 10. *L. domingensis.*
        - Glomerules of the flowers mostly terminating the branches; leaves densely strigose, somewhat sericeous beneath. 11. *L. sibbaldiaefolia.*
    - Hypanthium glabrous or nearly so.
      - Leaf-segments deeply cleft. 12. *L. subalpestris.*
      - Leaf-segments merely toothed above. 13. *L. Bourgeaui.*
- Leaves reduced to connate, imbricate sheaths, cleft at the margin into linear divisions, representing the dissected blades and stipules. 14. *L. ocreata.*

1. **Lachemilla orbiculata** (R. & P.) Rydberg.

Alchemilla orbiculata R. & P. Fl. Per. 1: 68. 1798.
Aphanes orbiculata Pers. Syn. Pl. 1: 150. 1805.
Alchemilla pectinata H.B.K. Nov. Gen. & Sp. 6: 226. 1824.
Alchemilla ciliata Willd.; Steud. Nom. Bot. ed. 2. 1: 47. 1841.

Sarmentose-stoloniferous perennial, profusely rooting; stems and peduncles silky-strigose, the former 1–3 dm. high; basal leaves long-petioled; stipules brown, scarious, and entire; petioles 1–10 cm. long, strigose; blades reniform, 9–11-lobed, sparingly strigose above, sericeous and strongly veined beneath, 1–4 cm. in diameter; lobes rounded, deeply serrate; stem-leaves short-petioled or the uppermost sessile, with fewer lobes; stipules foliaceous and more or less cleft; inflorescence cymose, but its branches often racemiform; hypanthium campanulate, constricted at the mouth, 2 mm. long, silky-strigose; bractlets and sepals silky, ovate, acute or acuminate, more or less spreading; filaments short; pistils 2–5, long-stipitate; achenes usually 2, ovoid, lenticular, acute, shining, glabrous, brown.

TYPE LOCALITY: Panao in the province of Panatahua, Peru.
DISTRIBUTION: Central Mexico to Bolivia.

2. **Lachemilla venusta** (Cham. & Schlecht.) Rydberg.

Alchemilla venusta Cham. & Schlecht. Linnaea 5: 573. 1830.

Sarmentose perennial, often rooting at the nodes; stems 1–4 dm. long, hirsute with spreading hairs; basal leaves and lower stem-leaves petioled, the upper sessile; stipules more or less connate, cleft with lanceolate lobes; lower petioles 1–6 cm. long, hirsute; blades of the basal leaves reniform, 1–3 cm. broad, deeply cleft into 5–7 broadly cuneate, sharply serrate divisions, dark-green, densely and coarsely pubescent beneath, less densely so above; uppermost leaf-blades sessile and 3-cleft; flowers cymose in small clusters near or at the ends of the branches, nearly sessile; hypanthium strigose, urceolate, about 1.5 mm. long; bractlets lanceolate, about 0.5 mm. long, acute, as long as the sepals and slightly narrower; stamens 2, short; pistils 2–4; achenes ovoid, acute, somewhat compressed.

TYPE LOCALITY: Jalapa, Mexico. [Not given in the original publication.]
DISTRIBUTION: Central Mexico to Guatemala.

3. **Lachemilla procumbens** (Rose) Rydberg.

Alchemilla procumbens Rose, Contr. U. S. Nat. Herb. 10: 96. 1906.

Cespitose perennial, with many creeping stems, which are 1–4 dm. long, rather sparingly appressed-silky, leafy; stipules ovate, 3–8 mm. long, usually toothed, somewhat adnate to the petioles and united around the stem; petioles 5–10 mm. long; leaf-blades more or less leathery, dark-green and glabrate above, paler and sparingly strigose beneath, deeply 3-parted to near the base, the lateral divisions usually again deeply 2-cleft; divisions obovate-cuneate to spatulate, 1–2 dm. long, rounded at the apex, coarsely crenate above the middle; inflorescence cymose, the branches usually more or less spreading, or more racemiform and with ascending branches; hypanthium open-campanulate, about 1.5 mm. high, strigose; bractlets lanceolate to ovate, acuminate, glabrous or somewhat strigose on the back, equaling or often exceeding the similar or slightly broader sepals; filaments less than half as long as the sepals; pistils 3–8, short-stipitate.

TYPE LOCALITY: Between Somoriel and Las Lajas, Hidalgo, Mexico.
DISTRIBUTION: Mountains of Mexico.
ILLUSTRATION: Contr. U. S. Nat. Herb. 10: *pl. 27.*

4. **Lachemilla vulcanica** (Cham. & Schlecht.) Rydberg.

Alchemilla vulcanica Cham. & Schlecht. Linnaea 5: 573. 1830.

Cespitose perennial, with branched rootstocks and creeping underground stems; the herbaceous above-ground stems 2–6 cm. high, sparingly strigose; lower leaves petioled; stipules connate and adnate to the petioles, 2–4-cleft into linear divisions; petioles of the lower leaves strigose, 3–4 mm. long; leaf-blades 3-parted to near the base; the lateral divisions sometimes 2-cleft; divisions 3–7 mm. long, cuneate, glabrous or sparingly strigose beneath, dark-green above, paler beneath, at the apex cleft into 3–7 linear or oblong divisions; flowers in small terminal cymes; pedicels 1–5 mm. long; hypanthium campanulate, strigose, scarcely 1 mm. long; bractlets and sepals strigose, the former lanceolate and shorter than the ovate, obtuse or acutish sepals; filaments one half as long as the sepals; pistils 2–4, slightly stipitate.

TYPE LOCALITY: Mount Orizaba, Mexico.
DISTRIBUTION: High mountains of Central Mexico to Guatemala.

5. **Lachemilla Schiedeana** Rydberg, sp. nov.

Alchemilla hirsuta campestris Cham. & Schlecht. Linnaea 5: 572. 1830; 13: 403. 1839. [Both in part].

Erect perennial; stem 2–4 dm. high, rather simple, hirsute with ascending hairs; lower leaves petioled, the upper sessile; stipules connate and adnate to the petioles, often 1 cm. long, divided into linear or lanceolate lobes; leaf-blades divided to the base into 3 divisions, the lateral ones of the lower leaves usually deeply 2-cleft as in *L. procumbens;* divisions cuneate or oblanceolate, dark-green, hirsute-strigose on both sides or glabrate

above, 1–1.5 cm. long; flowers in small axillary clusters, short-pedicelled; hypanthium deeply urceolate, about 2 mm. long, acute at the base, coarsely strigose; bractlets and sepals lanceolate, scarcely 1 mm. long, acute; filaments two thirds as long as the sepals; pistil solitary, on a rather thick stalk.

Type collected near Angangueo, Mexico, *Schiede 588* [herb. Columbia University].

6. **Lachemilla velutina** (S. Wats.) Rydberg.

Alchemilla velutina S. Wats. Proc. Am. Acad. 17: 354. 1882.

Branched perennial; stems decumbent or ascending, leafy, strigose with rather long hairs; stipules connate and adnate to the petioles, usually 2-cleft; lower leaves short-petioled, the upper sessile; leaf-blades divided to near the base into 3 cuneate divisions, which are 1 cm. long or less, sparingly strigose on both sides or glabrate above, 3–5-cleft with oblong lobes; flowers in small axillary clusters, nearly sessile; hypanthium urceolate, less than 1 mm. long, constricted at the mouth, finely and usually densely pubescent with short spreading hairs; bractlets lanceolate, shorter than the ovate sepals, which are scarcely 0.5 mm. long; carpels usually solitary.

TYPE LOCALITY: Swampy places about San Luis Potosi, Mexico.
DISTRIBUTION: Central Mexico.

7. **Lachemilla tripartita** (R. & P.) Rydberg.

Alchemilla tripartita R. & P. Fl. Per. 1: 68. 1798.
Aphanes tripartita Pers. Syn. Pl. 1: 150. 1805.

Cespitose perennial; stems ascending or erect, branched, leafy, strongly hirsute with spreading hairs; lower leaf-blades short-petioled, the upper sessile; stipules 4–5 mm. long, connate and adnate to the petioles, dissected into linear-lanceolate divisions; leaf-blades 3-parted to near the base, sparingly hirsute above, more densely so beneath; divisions cuneate, 1 cm. long or less, deeply toothed or cleft with linear or lanceolate divisions; flowers in small clusters in the axils of the upper leaves; hypanthium urceolate, sparingly hirsute, about 1 mm. long; bractlets and sepals lanceolate, about half as long, acute; pistils usually 2.

TYPE LOCALITY: Pillao, Peru.
DISTRIBUTION: In the mountains from Bolivia to Central Mexico.

8. **Lachemilla Pringlei** Rydberg, sp. nov.

Alchemilla hirsuta campestris Cham. & Schlecht. Linnaea 5: 572, in part. 1830.

Erect perennial, with branched root; stems branched, 3–4 dm. high, sparingly hirsute; lower leaves petioled, the upper sessile; stipules connate, and adnate to the petioles, often 1 cm. long, divided into 2–4, linear or lanceolate divisions; leaf-blades light-green, 3-parted to near the base, sparingly hirsute-strigose beneath, glabrate above, the divisions cuneate or obovate, coarsely toothed above the middle, 1–2 cm. long; flowers in small, axillary and terminal clusters, subsessile or short-pedicelled; hypanthium urceolate, a little over 1 mm. long, constricted at the mouth, strigose; bractlets lanceolate, glabrous, shorter than the ovate, acutish sepals; filaments half as long as the sepals; pistils 2–4.

Type collected in Sierra de San Felipe, State of Oaxaca, Mexico, in 1894, *Pringle 4876* [herb. Columbia University].
DISTRIBUTION: Central and southern Mexico and Guatemala.

9. **Lachemilla orizabensis** Rydberg, sp. nov.

Diffusely branched perennial; stem decumbent, strigose, leafy; lower leaves petioled, the upper sessile; stipules connate and adnate to the petioles, usually divided into 2 or 3 linear or oblong divisions; petioles of the lower leaves about 5 mm. long, strigose; leaf-blades 3-parted to the base, dark-green, strigose with long hairs on both sides or glabrate above; divisions cuneate, about 5 mm. long, deeply 3–5-cleft into linear divisions; flowers in small axillary clusters, short-pedicelled; hypanthium urceolate, strigose, about 1 mm. long; sepals and bractlets lanceolate, almost as long as the hypanthium, with a few hairs on the margins and mid-veins; filaments about half as long as the sepals; pistils usually 2, short-stipitate, but developed achenes often solitary.

Type collected at Mount Orizaba, Mexico, in 1855, *F. Mueller 1353* [herb. Columbia University].

10. **Lachemilla domingensis** (Urb.) Rydberg.

Alchemilla domingensis Urb. Symb. Antill. 5: 349. 1907.

Creeping perennial; stem up to 2 dm. long, pubescent with long erect hairs, dark-brown or the upper portion purplish; lower leaves petioled, the upper sessile; stipules connate, divided into two or more linear divisions, pilose on the back and at the apex; petioles 5 mm. long or less; leaves tripartite to near the base, glabrous above, long-pilose beneath, 4–8 mm. long, cleft one third their length into 5–7 linear divisions; flowers in small clusters in the axils of the upper leaves, sessile or short pedicelled, white; hypanthium short-obovate or obovate-globose, pubescent with erect hairs; bractlets 0.8 mm. long, lanceolate-linear, almost equaling the ovate or ovate-lanceolate sepals; stamens 2; filaments scarcely 0.3 mm. long; pistils 5, short-stipitate, carpels obliquely ovoid, brown.

TYPE LOCALITY: Valle Nuevo, St. Domingo.
DISTRIBUTION: Known only from the type locality.

11. **Lachemilla sibbaldiaefolia** (H.B.K.) Rydberg.

Alchemilla sibbaldiaefolia H.B.K. Nov. Gen. & Sp. 6: 225. 1824.

Erect or ascending perennial; stem 2–4 dm. high, branched, appressed-silky, leafy; stipules adnate to the petioles, 3–6 mm. long, silky-strigose beneath, 2–4-cleft into linear or lanceolate divisions; petioles 4–8 mm. long; leaf-blades 3-parted to near the base; divisions cuneate-obovate, acute, the lateral ones of the lower leaves often deeply 2-cleft, acute, sharply serrate above the middle, entire below, sparingly strigose or in age glabrate and dark-green above, densely silky-strigose beneath, 1–2 cm. long; inflorescence mostly terminating the branches, the flowers short-pedicelled in small clusters; hypanthium urceolate, about 1 mm. long, strigose throughout, in fruit strongly constricted at the mouth; bractlets lanceolate, about equaling the ovate sepals, both strigose without and acute; filaments about half as long as the sepals; pistils 2 or 3, short-stipitate; achenes dark, glabrous and shining.

TYPE LOCALITY: Near Tianguilla between Toluca and the City of Mexico.
DISTRIBUTION: Central Mexico.
ILLUSTRATION: H.B.K. Nov. Gen. & Sp. 6: *pl. 561.*

12. **Lachemilla subalpestris** (Rose) Rydberg.

Alchemilla hirsuta alpestris Cham. & Schlecht. Linnaea 5: 572. 1830. Not *Alchemilla alpestris* F. W. Schmidt. 1794.
Alchemilla subalpestris Rose, Contr. U. S. Nat. Herb. 10: 96. 1906.

Erect or ascending perennial; stems usually branched and leafy, hirsute with scattered spreading hairs or nearly glabrous, 1–4 dm. high; stipules adnate to the petioles and connate around the stem, deeply dissected into oblong or linear divisions; lower leaves petioled; petioles 1–4 cm. long, hirsute with scattered hairs; blades orbicular or reniform in outline, 3-divided to near the base and the lateral divisions usually deeply 2-cleft; divisions cuneate-obovate, 1–1.5 cm. long, sparingly hirsute on both sides or glabrate above, light-green, deeply dissected into oblong or linear lobes; blades of the upper stem-leaves, especially those of the inflorescence, sessile, obovate, and dissected, together with the almost similar stipules forming a perfoliate leaf; flowers nearly sessile, in small axillary clusters; hypanthium urceolate, in fruit almost round, glabrous, 0.75 mm. long; bractlets and sepals glabrous, ovate or lance-ovate, about 0.3 mm. long; pistils usually 2; achenes oval, glabrous, nearly 1 mm. long.

TYPE LOCALITY: Nevada de Toluca, Mexico.
DISTRIBUTION: Mountains throughout Mexico.

13. **Lachemilla Bourgeaui** Rydberg, sp. nov.

Erect or ascending perennial; stem 2–4 dm. high, rather simple, sparingly hirsute; stipules adnate to the petioles, hirsute, cleft into lanceolate divisions; petioles of the lower leaves about 1 cm. long, those of the uppermost obsolete; leaf-blades 3-cleft to the base or in the lower leaves the lateral divisions again 2-cleft; divisions obovate-cuneate, furnished above with ovate or lanceolate teeth, sparingly hirsute beneath, glabrous or nearly so

above, 1–2 cm. long; inflorescence small, glomerules usually at or near the ends of the branches; hypanthium urn-shaped, glabrous, in fruit almost globose, 1–1.5 mm. long; bractlets lanceolate, glabrous, about 0.5 mm. long, equaling the ovate sepals; pistils usually 2; achenes brownish, dotted.

Type collected in the valley of Mexico at Santa Fé, 1866, *Bourgeau 308* (U. S. Nat. Herb.).

14. **Lachemilla ocreata** (Donn. Smith) Rydberg.

Alchemilla ocreata Donn. Smith, Bot. Gaz. **23**: 7. 1897.

Cespitose perennial; stems decumbent, yellowish-sericeous; stipules and the reduced leaves forming amplexicaul sheath, strongly imbricate, divided into 6–8 lanceolate lobes, 4 mm. long, with revolute margins; flowers in terminal clusters; hypanthium campanulate, 1.5 mm. long; bractlets 4 or 5, lanceolate, acute, about equaling the ovate sepals; stamens 2, rarely 3, opposite the sepals; pistils about 8, stipitate.

TYPE LOCALITY: Thickets at General, Comarca de Punta Arenas, Costa Rica.
DISTRIBUTION: Known only from the type locality.

33. **ZYGALCHEMILLA** Rydberg, gen. nov.

Perennial herbs, more or less sarmentose-stoloniferous. Basal leaves pinnatifid with numerous 2–3-cleft leaflets and with scarious brown stipules; stipules of the more reduced stem-leaves connate and adnate to the petioles. Flowers solitary in the axils of the small leaves of the inflorescence. Hypanthium obconic-urceolate, slightly if at all contracted at the mouth. Sepals and bractlets 4, lanceolate, 3-nerved. Petals none. Stamens 2, opposite two of the sepals; filaments slender, nearly equaling the sepals; anthers extrorse. Disk poorly developed. Pistils 1 or 2, conspicuously stipitate; styles basal, slender; stigmas capitate.

Type species, *Alchemilla pinnata* R. & P.

1. **Zygalchemilla pinnata** (R. & P.) Rydberg.

Alchemilla pinnata R. & P. Fl. Per. 1: 69. 1798.
Aphanes pinnata Pers. Syn: Pl. 1: 150. 1805.
Aphanes alata Steud. Nom. Bot. 58. 1821.
Alchemilla pinnata Renny, Ann. Sci., Nat. III. 6: 354. 1846.
Alchemilla achilleaefolia Renny, Ann. Sci. Nat. III. 8: 224. 1847.

Sarmentose-stoloniferous perennial, rooting at the nodes; stem hirsute; basal leaves pinnatifid with numerous segments; stipules brown, scarious, ciliate, lanceolate, entire; leaflets deeply 3-cleft into lanceolate or oblong divisions, hirsute, 3–5 mm. long; stipules of the stem-leaves foliaceous, connate, dissected into linear divisions; blades sessile with few segments; flowers solitary in the axils of the upper leaves, short-pedicelled; hypanthium campanulate, only slightly constricted at the mouth, about 2 mm. long; bractlets and sepals lanceolate, 3-nerved, strigose without, about 1 mm. long; filaments nearly equaling the sepals; pistils 1–2, stipitate.

TYPE LOCALITY: Huassahuassi, Peru.
DISTRIBUTION: Mountains from central Mexico to Bolivia.

Tribe 9. **SANGUISORBEAE.** Perennial or annual herbs, with alternate, usually odd-pinnate leaves and foliaceous stipules. Inflorescence racemose or spicate; flowers perfect or unisexual. Hypanthium urceolate, campanulate, or turbinate, more or less constricted at the mouth, in fruit enclosing the achenes and more or less indurate. Disk usually well developed, bearing one to many stamens. Bractlets sometimes present, but lacking in all our genera. Petals 4 or 5, or wanting; in the latter case, the sepals usually colored and petal-like. Pistils usually 1 or 2, rarely 3–5; styles terminal, persistent; stigmas capitate or brush-like.

Hypanthium not prickly; petals lacking.
  Stamens 2–4, not declined; pistil 1.
    Perennials, with rootstocks; stigmas muricate-papillose; leaflets toothed. 34. SANGUISORBA.
    Annuals or biennials, with tap-roots; stigmas brush-like; leaflets pectinate-pinnatifid. 35. POTERIDIUM.
  Stamens in the staminate flowers numerous and declined; pistils 2. 36. POTERIUM.
Hypanthium prickly.
  Petals wanting; spines of the hypanthium barbed; inflorescence dense. 37. ACAENA.
  Petals present; spines of the hypanthium hooked; inflorescence lax. 38. AGRIMONIA.

34. SANGUISORBA L. Sp. Pl. 116. 1753.

Leafy perennial herbs, with thick rootstocks. Leaves odd-pinnate with adnate stipules and toothed leaflets. Flowers perfect or some of them pistillate, in dense spikes. Hypanthium urn-shaped, contracted at the mouth, angled and usually winged. Sepals 4, petaloid, deciduous, very concave. Petals none. Stamens in ours 4, opposite to the sepals. Pistils solitary; styles terminal; stigmas muricate-papillose; ovule solitary, suspended. Achenes dry, enclosed in the indurate 4-angled smooth hypanthium.

Type species, *Sanguisorba officinalis* L.

Stamens 2–3 times as long as the sepals; filaments flattened and dilated, especially towards the apex.
  Flowers white or greenish, heads at first lanceolate, acute, in age long-cylindric.
    Leaflets oblong, varying to ovate-oblong or lanceolate-oblong, 2–4 times as long as broad; midrib of the sepals thickened towards the apex. 1. *S. canadensis*
    Leaflets broadly oval, deeply cordate at the base, less than twice as long as broad; midrib of the sepals not thickened. 2. *S. sitchensis.*
  Flowers purplish in oblong obtuse spikes. 3. *S. Menziesii.*
Stamens slightly if at all exceeding the sepals; filaments filiform; flowers purplish.
  Stamens decidedly exserted, leaflets rounded-ovate or oblong-ovate, rarely twice as long as broad, rounded at the apex. 4. *S. microcephala.*
  Stamens usually included; leaflets usually lance-oblong, obtuse or acutish, 2–4 times as long as broad. 5. *S. officinalis.*

1. Sanguisorba canadensis L. Sp. Pl. 117. 1753.

Sanguisorba palustris Raf. Atl. Journ. 153. 1832.
Poterium canadense A. Gray, Man. ed. 5. 150. 1867.

Glabrous perennial, with a strong rootstock; stem leafy, 3–20 dm. high, simple or branched above; leaves odd-pinnate, 1–6 dm. long, the lower with 7–17 leaflets, occasionally with foliaceous stipels, the upper more reduced; stipules adnate to the petioles, often leafy and oblique, coarsely serrate; leaflets with petiolules 5–25 mm. long, oblong, varying to ovate-oblong or lance-oblong, sharply serrate, obtuse at the apex, rounded, truncate, or somewhat cordate at the base, 1–6 cm. long, 5–30 mm. wide, firm, dark-green above, paler beneath; spike 3–15 cm. long, with the stamens 2 mm. thick, beginning to bloom at the base, therefore at first lanceolate and tapering to the apex; bracts lanceolate, pubescent, about equaling the buds; sepals oval, mucronate, white or greenish-white, 3 mm. long; filaments 6–8 mm. long, flattened and gradually dilated above, at the apex about 0.5 mm. wide, only a little narrower than the anthers; fruit puberulent, rounded rhombic-ovoid, 4-winged.

TYPE LOCALITY: Canada.
DISTRIBUTION: Swamps from Labrador and Newfoundland to Georgia and Michigan.
ILLUSTRATIONS: Cornuti, Can. Pl. Hist. 174; Morison, Hist. *pl. 18, f. 12;* Britt. & Brown, Ill. Fl. *f. 1964.*

2. Sanguisorba sitchensis C. A. Meyer, Fl. Ochot. 34. 1856.

Sanguisorba canadensis Cham. & Schlecht. Linnaea 2: 32. 1827.
Sanguisorba canadensis latifolia Hook. Fl. Bor. Am. 1: 198. 1832.
Poterium sitchense S. Wats. Bibl. Ind. 1: 303. 1878.
Sanguisorba latifolia Coville, Cont. U. S. Nat. Herb. 3: 339. 1896.

Glabrous perennial, with a strong rootstock; stem leafy, 2–12 dm. high, simple or branched above; leaves odd-pinnate, 1–10 dm. long, the lower with 11–21 leaflets, the upper more reduced; stipules rounded, coarsely toothed; leaflets 2–7 cm. long, 1.5–5 cm. wide, coarsely serrate with ovate teeth, rather thin, paler beneath, rounded at the apex, those of the lower leaves deeply cordate at the base; petiolules often 1 cm. long; spike

2–10 cm. long, with the stamens 1.5–2 cm. thick, at first lanceolate, in age cylindric; bracts lanceolate, glabrous or ciliate; sepals oval, 2.5–3 mm. long, white or slightly tinged with purple; filaments 8–10 mm. long, flattened and dilated above, at the apex nearly 0.5 mm. wide.

TYPE LOCALITY: Sitka.
DISTRIBUTION: Wet places, especially salt marshes, from Alaska and Yukon Territory to Idaho and Oregon.

3. **Sanguisorba Menziesii** Rydberg, sp. nov.

Sanguisorba media Hook. Fl. Bor. Am. 1: 197. 1832. Not *Sanguisorba media* L. 1762.

Glabrous perennial, with a short rootstock; stem slender, 3–10 dm. high, mostly simple; leaves odd-pinnate, the lower 2–4 dm. long, with 11–15 petiolulate leaflets, occasionally with stipels; stipules large, rounded, coarsely toothed; leaflets rounded-oval, 2–6 cm. long, 1.5–4 cm. wide, coarsely serrate with broadly ovate, mucronate teeth, rounded at the apex, cordate at the base, dark-green and shining above, paler beneath; spike oblong-cylindric, 1.5–3 cm. long, rounded at the apex; bracts ovate or lanceolate, rather densely pubescent, shorter than the buds; sepals dark-purple, oval, about 2.5 mm. long; filaments dilated, 5–7 mm. long, nearly 0.5 mm. wide at the apex.

Type collected in the mountains back of Short Bay, Alaska, in 1895, *Thomas Howell 1620* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Marshes from Alaska to Washington.

4. **Sanguisorba microcephala** Presl, Epim. Bot. 202. 1849.

Poterium officinale A. Gray, Proc. Am. Acad. 7: 340, in part. 1868.
Sanguisorba officinalis Howell, Fl. NW. Am. 1: 170, mainly. 1898.

Glabrous perennial, with a rootstock; stem slender, 3–6 dm. high, simple or branched above; leaves odd-pinnate, the lower with 9–13 leaflets; lower stipules narrowly lanceolate, adnate to the petioles, the upper expanded above with a rounded foliaceous toothed blade; leaflets oblong-ovate, 1–4 cm. long, 1–2.5 cm. wide, rounded at the apex, cordate at the base, dark-green above, paler beneath, serrate with ovate mucronate teeth; spike rounded-elliptic to oblong-cylindric, dense, 1.5–2.5 cm. long, 10–15 mm. thick; bracts ovate, pubescent, shorter than the buds; sepals dark-purple, oval, 2–2.5 mm. long; filaments filiform, about 3 mm. long; fruiting hypanthium pubescent, rounded-ellipsoid, narrowly 4-winged.

TYPE LOCALITY: Nootka Sound.
DISTRIBUTION: Mountain marshes from Alaska and Yukon Territory to California.

5. **Sanguisorba officinalis** L. Sp. Pl. 116. 1753.

Poterium officinale A. Gray, Proc. Am. Acad. 7: 340. 1868.[1]

Glabrous perennial, with a rootstock; stem 1–2 m. high, branched above; lower leaves 3–10 dm. long, odd-pinnate with 9–13 leaflets, the upper reduced; lower stipules narrowly lanceolate, entire, the upper ones foliaceous, often lunate, serrate; leaflets lance-oblong or those of the basal leaves sometimes ovate, acute or obtuse, serrate with triangular teeth, 2–8 cm. long, 0.5–3 cm. wide, rather firm, truncate or slightly cordate at the base, dark-green above, paler beneath; spike rounded to oblong-cylindric, 1–3 cm. long, about 1 cm. thick; bractlets lanceolate, shorter than the buds; sepals dark-purple, 2–2.5 mm. long, oval; filaments filiform, of about the same length as the sepals or shorter; hypanthium in fruit obovate, 4-angled.

TYPE LOCALITY: Dry meadows of Europe.
DISTRIBUTION: Europe and Asia; cultivated in gardens and rarely escaped; established in Maine and reported also from Minnesota and California.
ILLUSTRATIONS: Fl. Dan. *pl. 97*; Sv. Bot. *pl. 305*; Eng. Bot. *pl. 1312*; Baxter, Brit. Bot. *pl. 269*; Hayne, Arzn. Gew. 8: *pl. 22*; Dietr. Fl. Bor. 4: *pl. 274*; Fl. Deuts. ed. 5. *pl. 2548*.

DOUBTFUL SPECIES

Sanguisorba media L. Sp. Pl. ed. 2. 169. 1762. This was based mainly on the illustrations in Zanoni's Historia, *pl. 138*, and Morison's Historia 3: *pl. 18, f. 8*. It was sup-

[1] There are many more synonyms that are here omitted as they have no bearing on North American botany.

posed to be a native of Canada. It appears to differ from *S. officinalis* in the more elongated spike and long-exserted filaments. No native plant of eastern North America agrees with the description. A species with purple flowers and long-exserted filaments occurs on the west coast and this was referred to *S. media* by Hooker. It has, however, much broader leaflets than those figured by Zanoni and by Morison. In Dictionnaire des Sciences Naturelles *pl.* [*240*] there is a good illustration of a plant named *S. media* and agreeing in every respect with the description and the older illustrations. This is figured as having filiform filaments, not dilated as they are in *S. Menziesii*. *S. media* must either be an Old World species or else a garden hybrid or derivative of *S. officinalis*.

35. **POTERIDIUM** Spach, Ann. Sci. Nat. III. 5: 43. 1846.

Leafy branched annuals or biennials, with tap-roots. Leaves odd-pinnate, with adnate stipules and pectinately pinnatifid leaflets. Flowers greenish, perfect, in dense, oblong spikes. Hypanthium urn-shaped, contracted at the mouth, 4-winged. Sepals 4, green with white-scarious margins. Stamens 2 or 4, opposite all or the inner two sepals; filaments short. Pistils solitary; styles terminal; stigmas brush-like; ovules solitary, suspended. Achenes enclosed in the 4-winged, indurate, dry hypanthium.

Type species, *Sanguisorba annua* Nutt.

Fruiting hypanthium with thin wings about 0.5 mm. wide, not reticulate on the faces; stamens usually 4; sepals tuberculose-thickened at the base. 1. *P. annuum*.
Fruiting hypanthium with very narrow thick wings, more or less reticulate on the faces; stamens usually 2; sepals not conspicuously thickened at the base. 2. *P. occidentale*.

1. **Poteridium annuum** (Nutt.) Spach, Ann. Sci. Nat. III. 5: 43. 1846.

Poterium annuum Nutt.; Hook. Fl. Bor. Am. 1: 198. 1832.
Sanguisorba annua Nutt.; T. & G. Fl. N. Am. 1: 429. 1840.

Glabrous annual or perhaps rather biennial, with a tap-root; stem branched, leafy, 1–4 dm. high; leaves odd-pinnate; stipules of the basal leaves entire, those of the stem-leaves pectinately divided; leaflets 7–15, broadly obovate, 7–12 mm. long, pectinate-pinnatifid with obtuse, linear-oblong or linear, mostly spreading divisions; spikes at the ends of the branches, oblong-cylindric to globose, 0.5–3 cm. long, about 7 mm. thick; bracts and bractlets ovate, shorter than the flowers, scarious-hyaline; sepals broadly oval, apiculate, 2 mm. long, green with broad white-scarious margins; stamens usually 4; filaments filiform, short; fruiting hypanthium ovoid, 2.5 mm. long, with strong thin wings, which are nearly 0.5 mm. wide, faces not reticulate.

TYPE LOCALITY: Plains of Red River, Arkansas.
DISTRIBUTION: From Arkansas to Kansas and Texas.
ILLUSTRATION: Torrey, Marcy's Rep. *pl. 5*.

2. **Poteridium occidentale** (Nutt.) Rydberg.

Poterium annuum Hook. Fl. Bor. Am. 1: 198, in part. 1832.
Sanguisorba occidentalis Nutt.; T. & G. Fl. N. Am. 1: 429. 1840.
Sanguisorba myriophylla A. Braun & Bouché, Ind. Sem. Hort. Berol. 1867: app. 10. 1868.
Poterium myriophyllum Gay [misprint for Geyer] Select. Sem. Hort. Acad. Dresden. 1846.—A. Braun & Bouché, *loc. cit.*

Glabrous biennial or perhaps perennial herb, with a tap-root; stem branched, leafy, 2–10 dm. high; leaves glabrous, odd-pinnate; stipules of the basal leaves entire, lanceolate; those of the stem-leaves foliaceous and pectinately cleft into linear segments; leaflets of the lower leaves 11–15, obovate, the larger 1–2 cm. long, pectinately pinnatifid into 9–15 narrowly linear acute divisions, mostly strongly ascending; spikes at the ends of the branches, globose to oblong-cylindric, 0.5–2.5 cm. or in fruit even 3–4 cm. long, 7–8 mm. thick; flowers hermaphrodite; bracts and bractlets ovate, concave, green on the midrib, with broad scarious-hyaline margins; sepals oval, white-margined, green in the middle, obtuse, apiculate, 2 mm. long; stamens 2, opposite the inner sepals; filaments filiform, short; fruiting hypanthium lance-ovoid, 4-angled with narrow, thick wings, reticulated on the faces.

TYPE LOCALITY: Grand Rapids of the Oregon [Columbia River].
DISTRIBUTION: Southern British Columbia and western Montana to southern California.

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